

FIG. 2

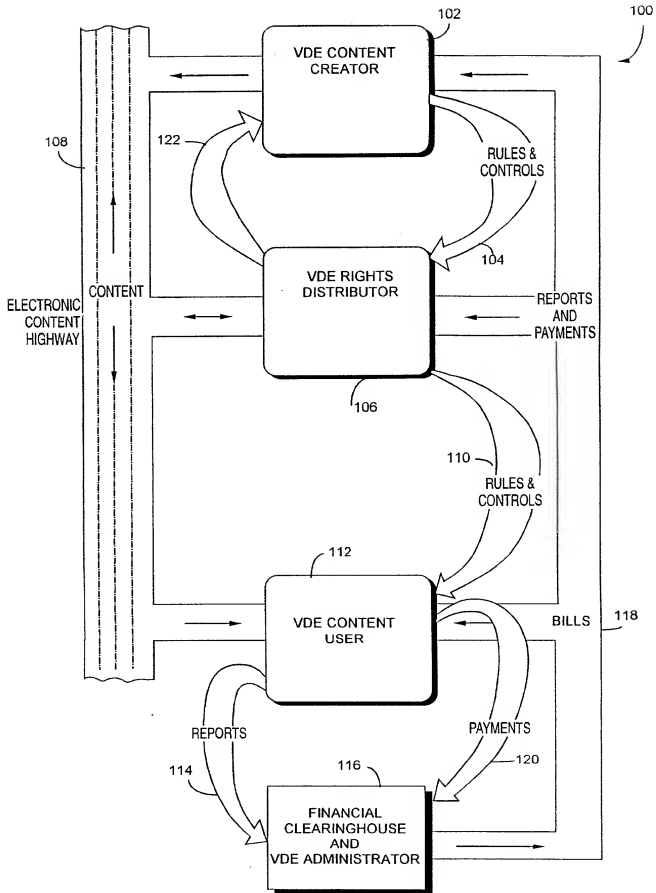


FIG. 2A

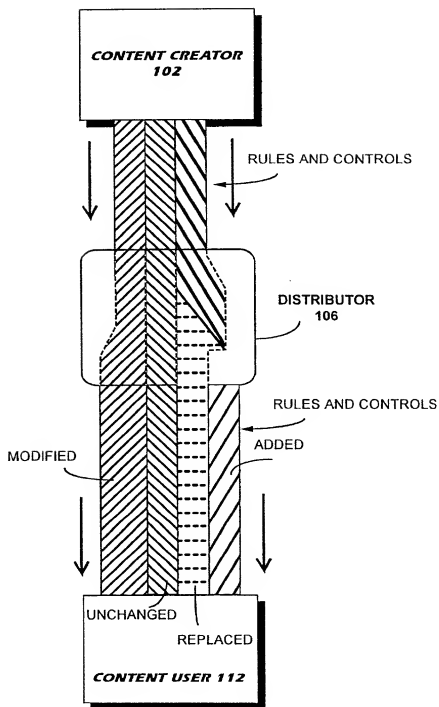
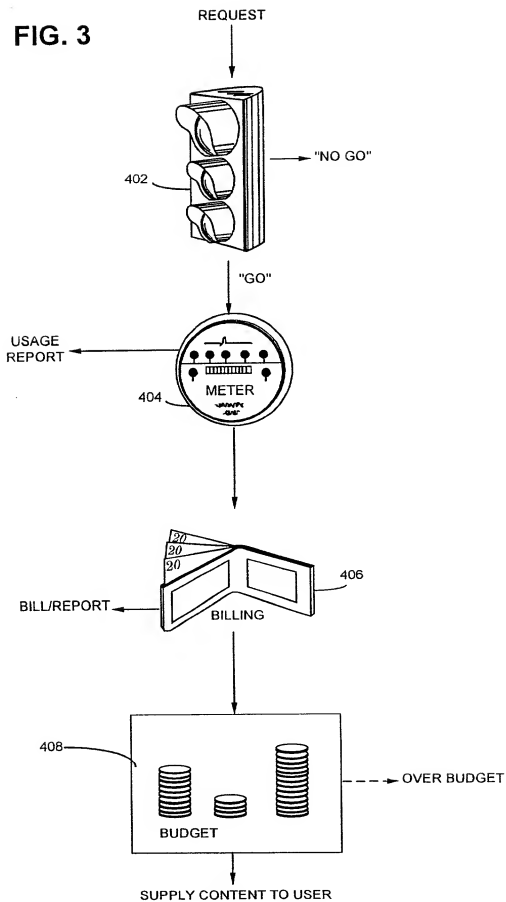


FIG. 3



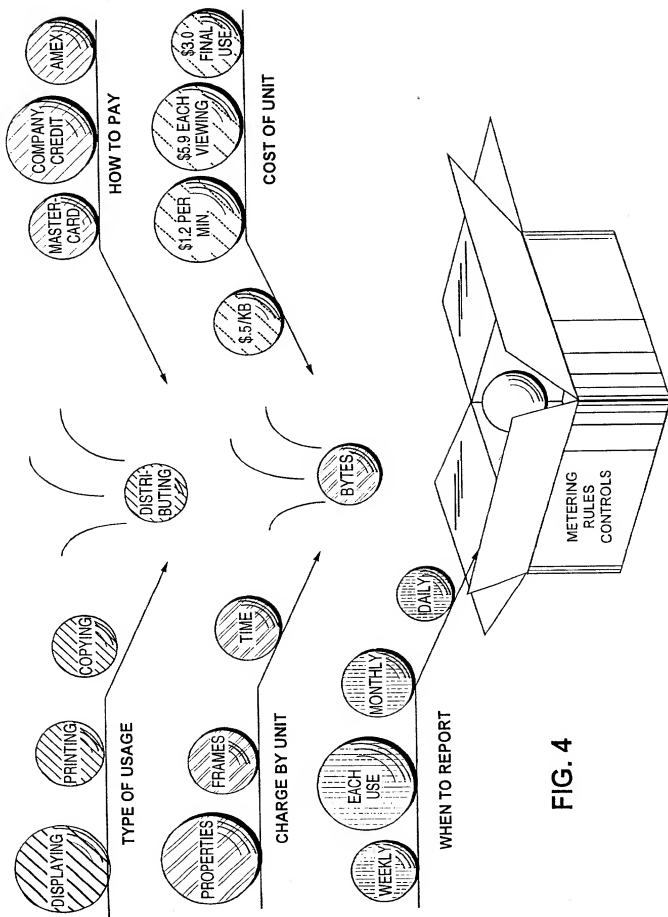


FIG. 4

FIG. 5A

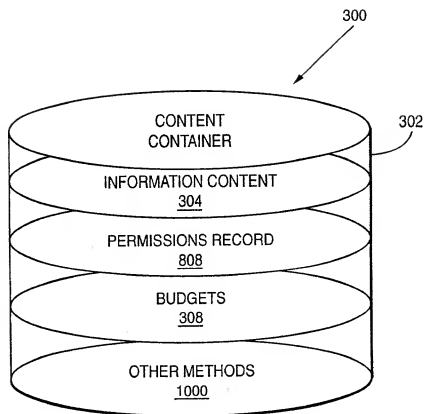
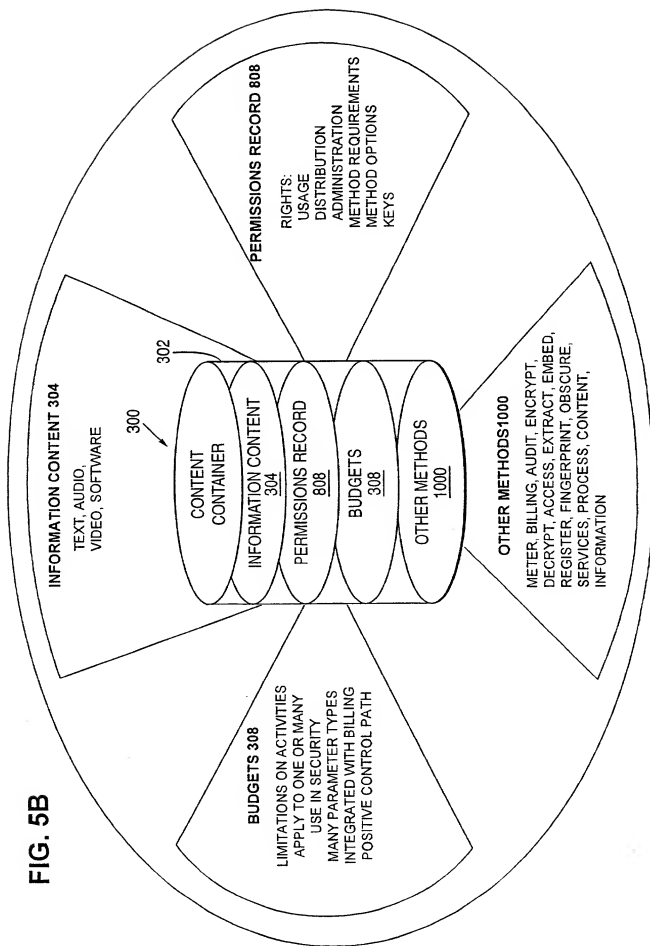


FIG. 5B



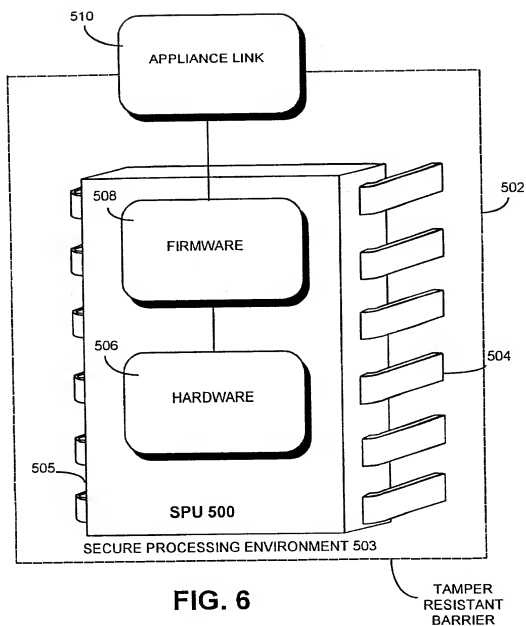


FIG. 6

FIG. 7

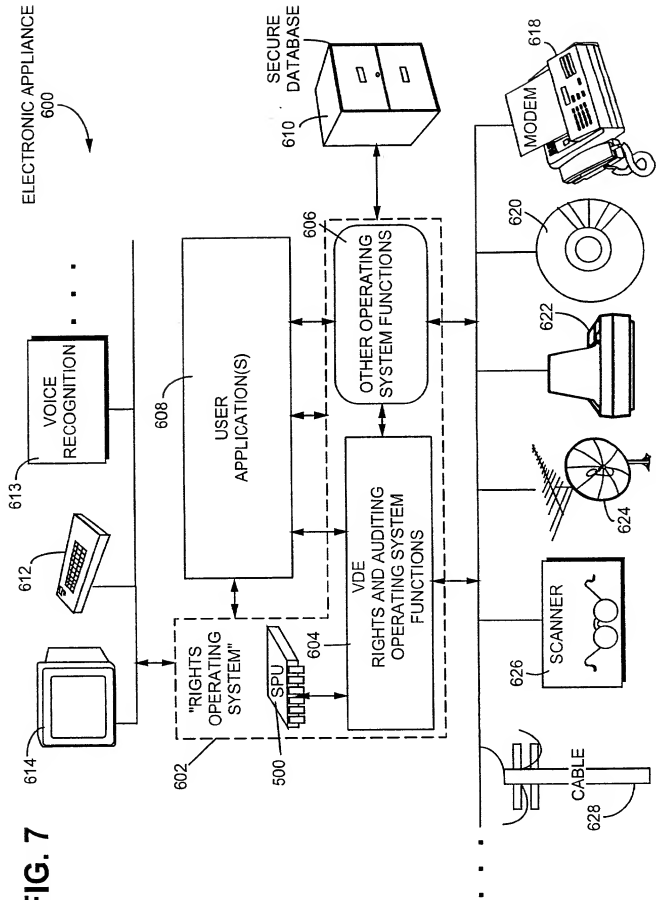
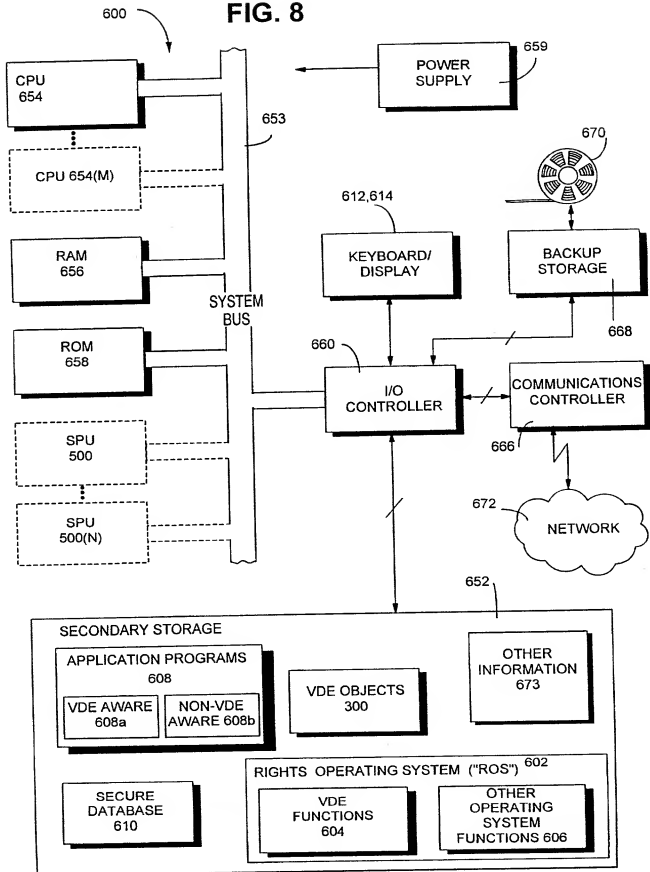


FIG. 8



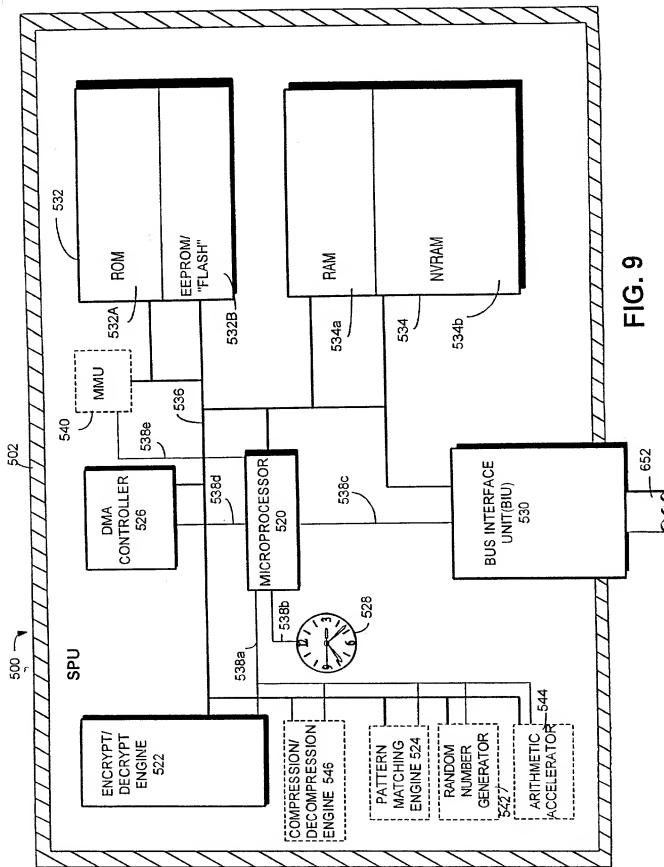


FIG. 9

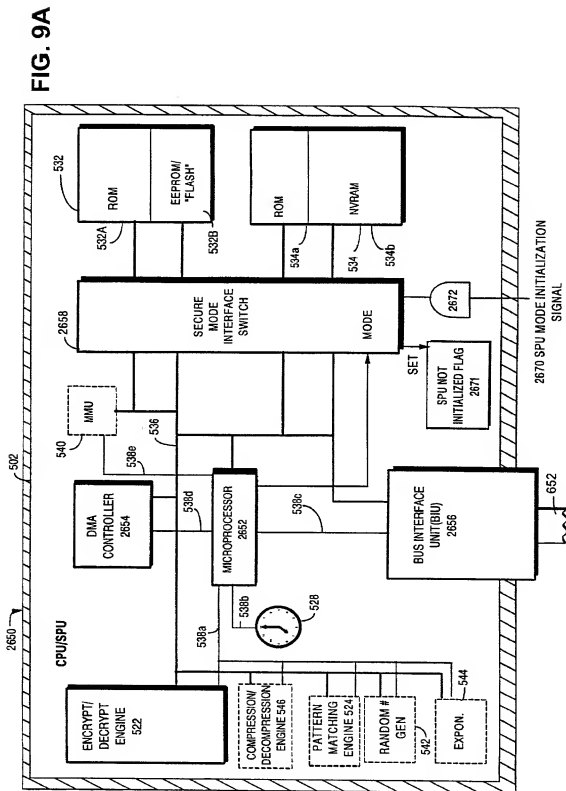
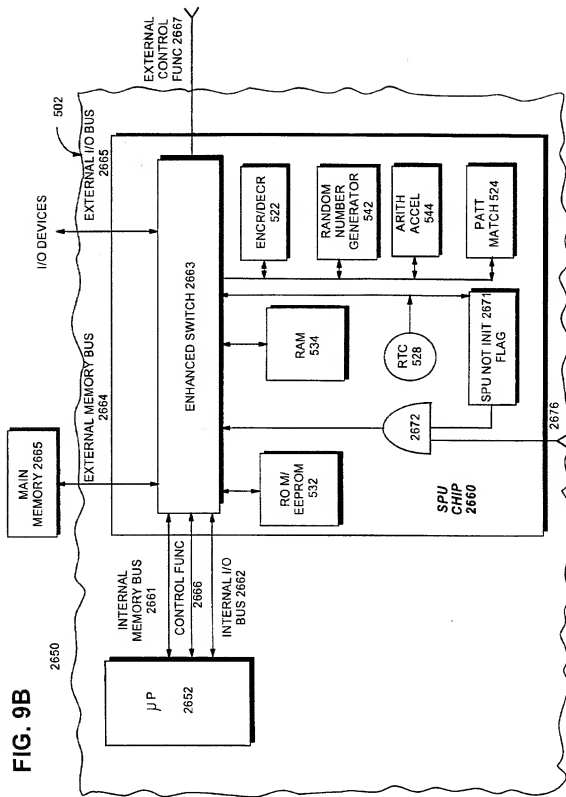


FIG. 9B



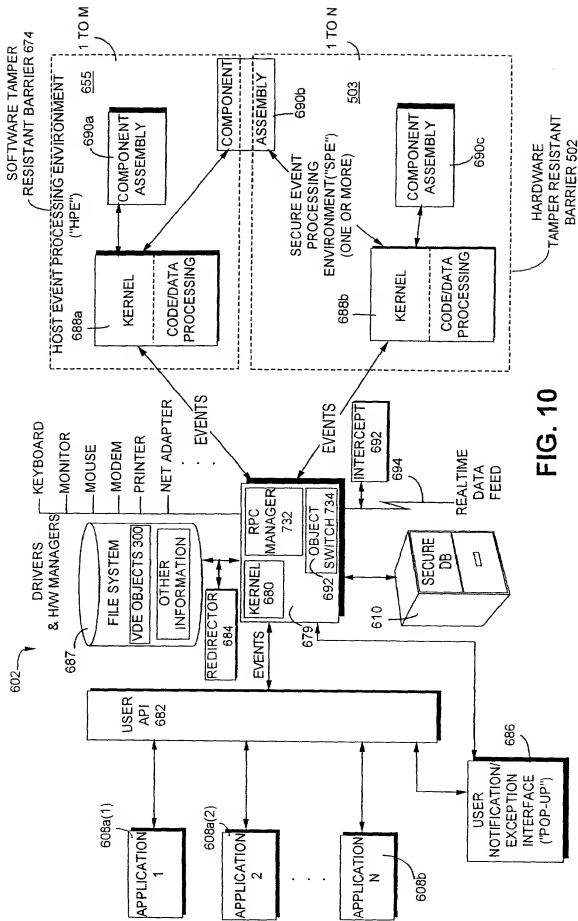


FIG. 10

FIG. 11C

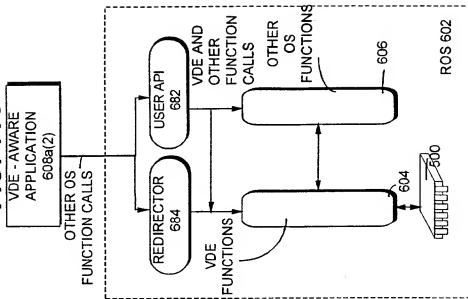


FIG. 11B

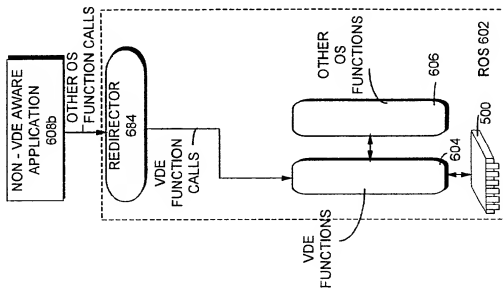
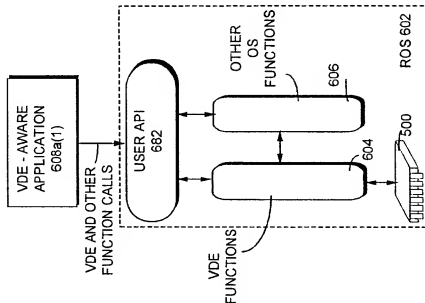


FIG. 11A



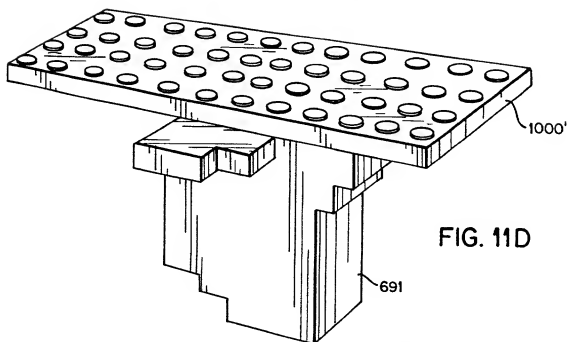


FIG. 11D

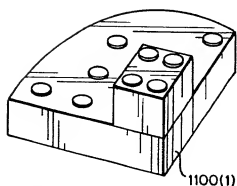


FIG. 11E

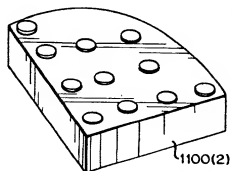


FIG. 11F

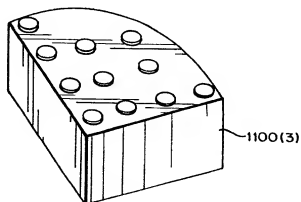


FIG. 11G

FIG. 11H

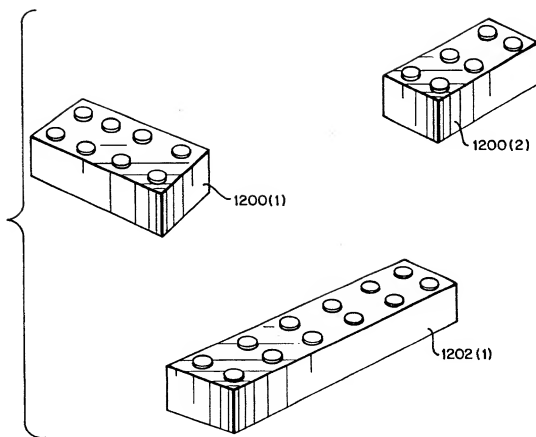
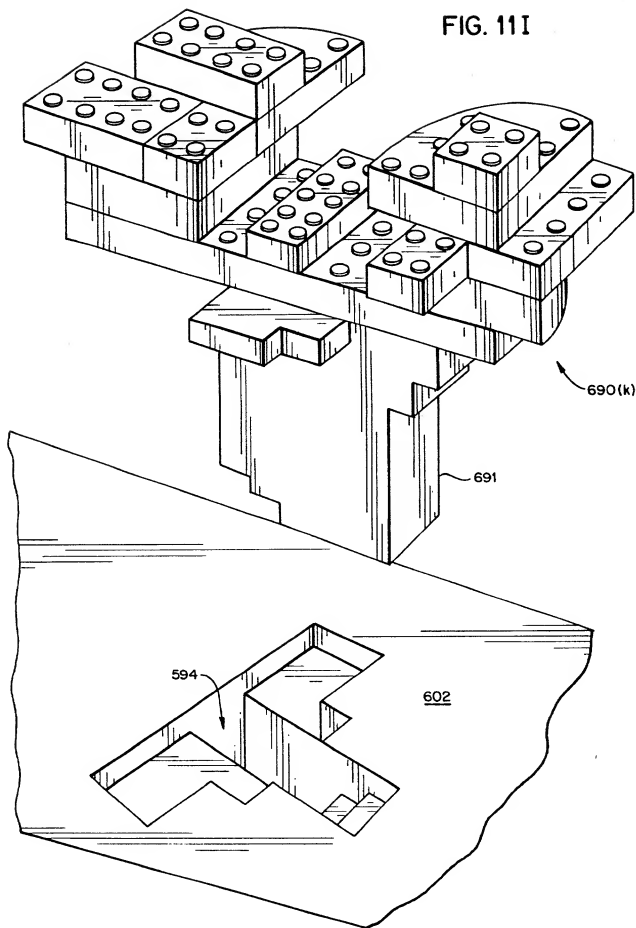


FIG. 11H

FIG. 11I



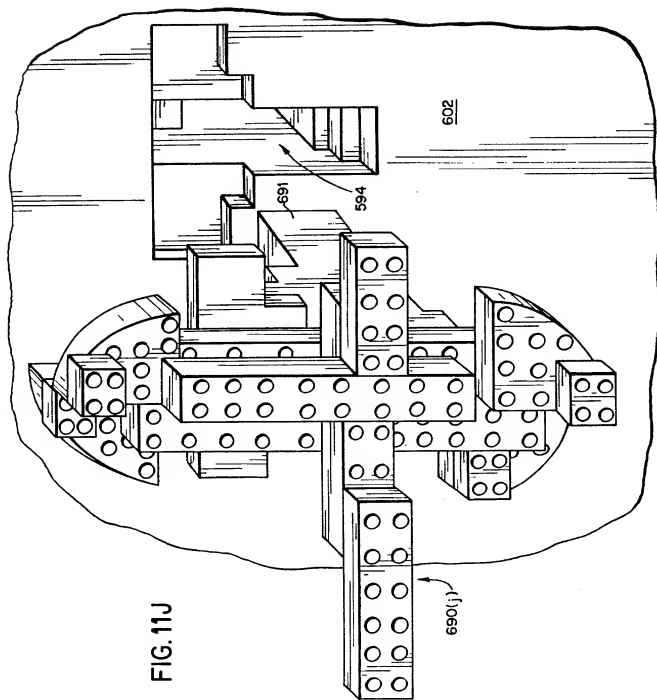


FIG. 12A

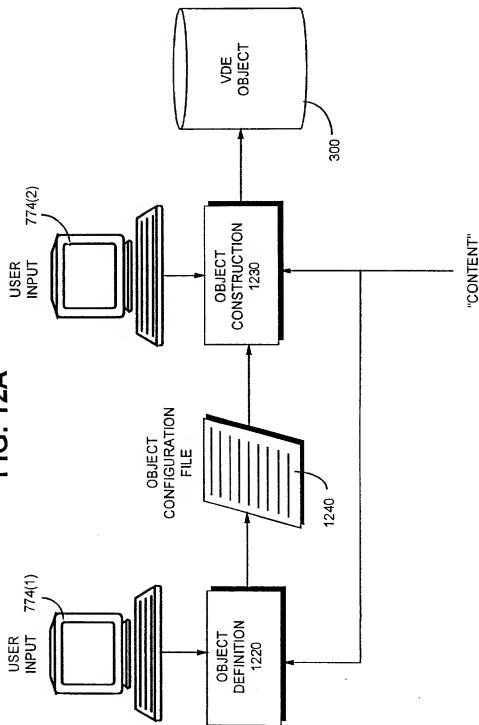


FIG. 13

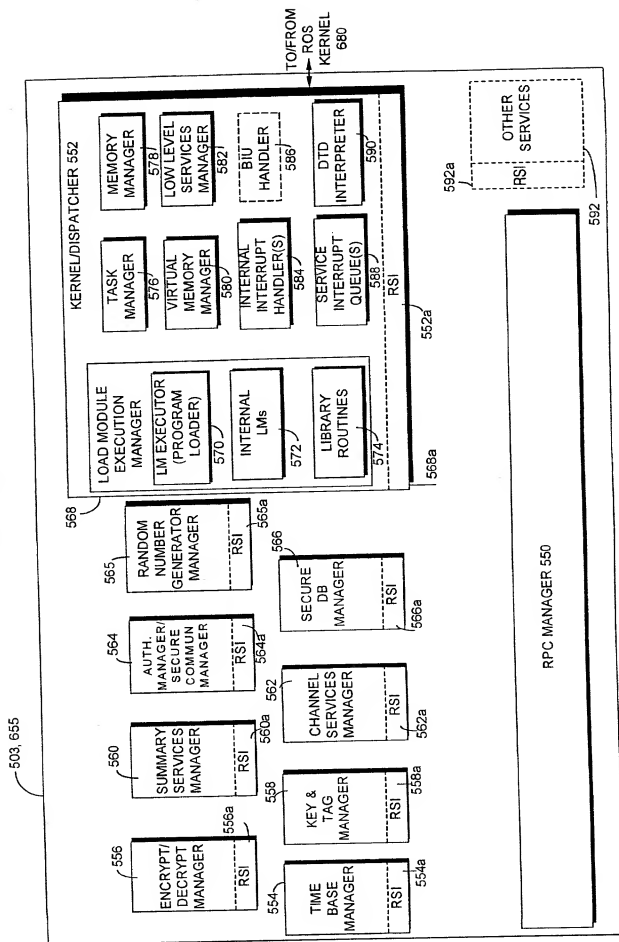


FIG. 14A

DEVICE FIRM WIRE LOW LEVEL SERVICES 582
INITIALIZATION
POST
DOWNLOAD CHALLENGE/RESPONSE AND AUTHENTICATION
RECOVERY
EEPROM/FLASH MEMORY MANAGER
KERNEL/DISPATCHER 552
INITIALIZATION
TASK MANAGER 576 (SLEEP/AWAKE/CONTEXT SWAP)
INTERRUPT HANDLER 584 (TIMER/BIU/POWER FAIL/WATCHDOG TIMER/ENCRYPTION COMPLETED)
BIU HANDLER 586
MEMORY MANAGER 578
INITIALIZATION (SETTING MMU TABLES
ALLOCATE
DEALLOCATE
VIRTUAL MEMORY MANAGER 580
SWAP BLOCK PAGING
EXTERNAL MODULE PAGING
MEMORY COMPRESS
RPC AND TABLES 550
INITIALIZATION
MESSAGING CODE /SERVICES MANAGER
SEND/RECEIVE
STATUS
RPC DISPATCH TABLE
RPC SERVICE TABLE

⋮

TIME BASE MANAGER 554
ENCRYPTION/DECRYPTION MANAGER 556
PK
BULK
KEY AND TAG MANAGER 558
KEY STORAGE IN EEPROM
KEY LOCATOR
KEY GENERATOR
CONVOLUTION ALGORITHM
SUMMARY SERVICES MANAGER 560
EVENT SUMMARIES
BUDGET SUMMARIES
DISTRIBUTER SUMMARY SERVICES
CHANNEL SERVICES MANAGER 562
CHANNEL HEADERS
CHANNEL DETAILS
LOAD MODULE EXECUTION SERVICES 568
AUTHENTICATION MANAGER/SECURE COMMUNICATION MANAGER 564
DATABASE MANAGER 566
MANAGEMENT FILE SUPPORT
TRANSACTION AND SEQUENCE NUMBER SUPPORT
SRN/ HASH
DTD INTERPRETER 590
LIBRARY ROUTINES 574
I/O CALLS (STRING SEARCH ETC.)
MISC. ITEMS THAT ARE PROBABLY LIBRARY ROUTINES
TAG CHECKING, MD5, CRC'S
INTERNAL LM'S 572 FOR BASIC METHODS
METER LOAD MODULE(S)
BILLING LOAD MODULE(S)
BUDGET LOAD MODULE(S)
AUDIT LOAD MODULE(S)
READ OBJECT LOAD MODULE(S)
WRITE OBJECT LOAD MODULE(S)
OPEN OBJECT LOAD MODULE(S)
CLOSE OBJECT LOAD MODULE(S)

⋮

FIG. 14B

⋮

PUBLIC KEY AND PRIVATE KEY, SYSTEM ID, AUTHENTICATION CERTIFICATE, VDE SYSTEM PUBLIC KEY, PRIVATE DES KEY
TOP LEVEL KEYS FOR OBJECTS
TOP LEVEL BUDGET INFO
METER SUMMATION VALUES
KEY RECORDS FOR BUDGET RECORDS, AUDIT RECORDS, STATIC MANAGEMENT RECORDS, UPDATED MANAGEMENT RECORDS, ETC.
⋮
DEVICE DATA TABLE
SITE ID
TIME
ALARMS
TRANSACTION/SEQUENCE #S
MISCELLANEOUS
MEMORY MAP
MAP METERS
LM/UDT TABLE
TASK MANAGER 576
CHANNEL(S)
SUMMARY SERVICES 560
SECURE DATABASE TAGS
SRN ENTRIES
HASH ENTRIES

⋮

FIG. 14C

STACK	
:	
CHANNEL SWAP BLOCK	CHANNEL LM
	CHANNEL HEADER & D1
CONTROL SWAP BLOCK	CONTROL LM
	CONTROL D1
	COMMIT LM
	COMMIT D1, D2, D3
EVENT SWAP BLOCK	EVENT LM
	MAP TABLE (SINGLE) D1
METER SWAP BLOCK	METER LM
	METER UDE DELTA,DELTA'
	METER TRAIL LM
	METER TRAIL UDE DELTA,DELTA'
BUDGET SWAP BLOCK	METER LM
	METER UDE DELTA,DELTA'
	METER TRAIL LM
	METER TRAIL UDE DELTA,DELTA'
BILLING SWAP BLOCK	BILLING LM
	METER UDE
	BUDGET UDE
	BILLING TABLE UDE
	BILLING TRAIL LM
	BILLING TRAIL UDE DELTA'

:

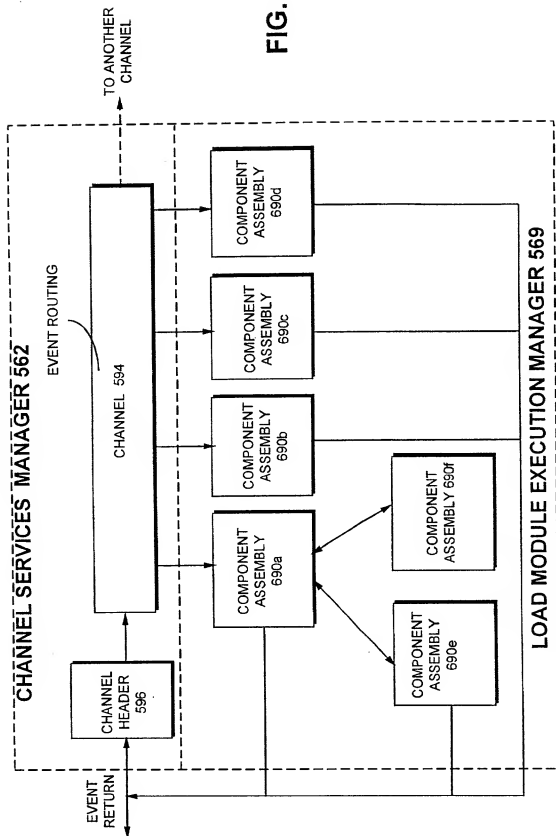


FIG. 15

FIG. 15A

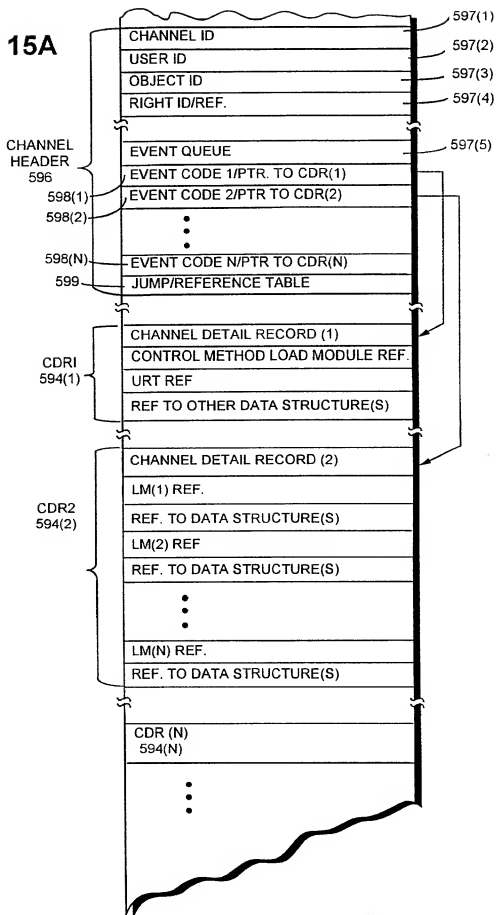
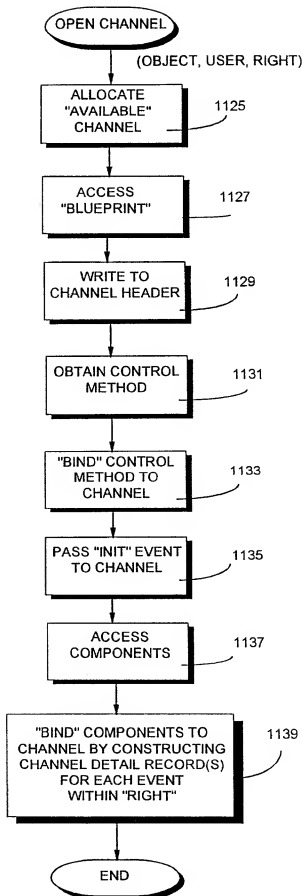


FIG. 15B



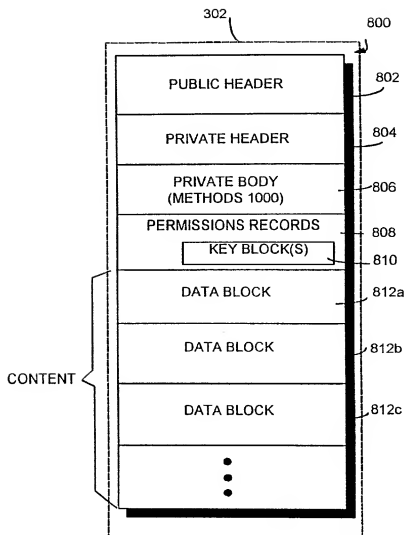


FIG. 17

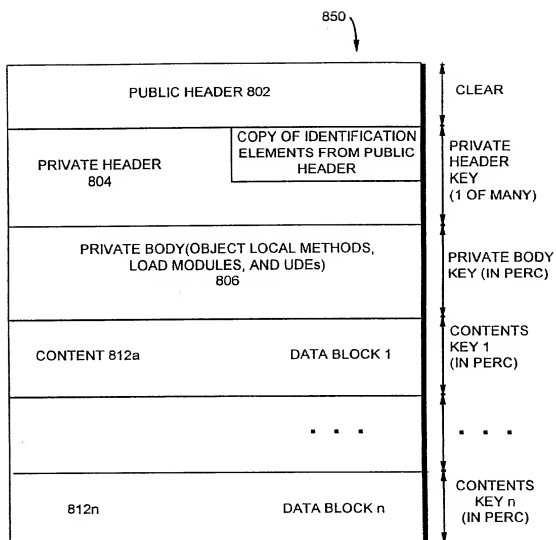


FIG. 18

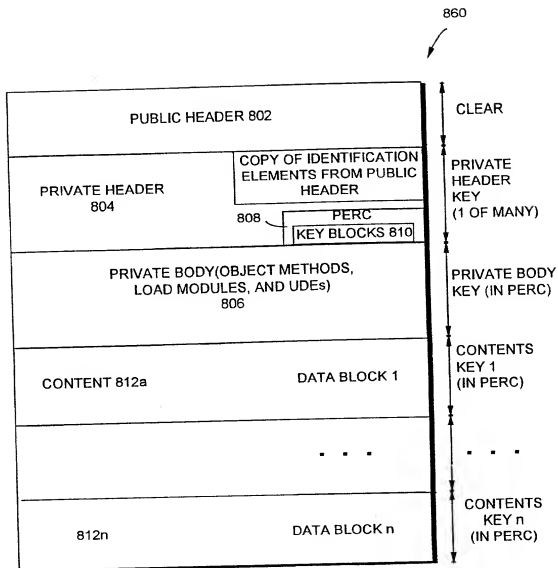


FIG. 19

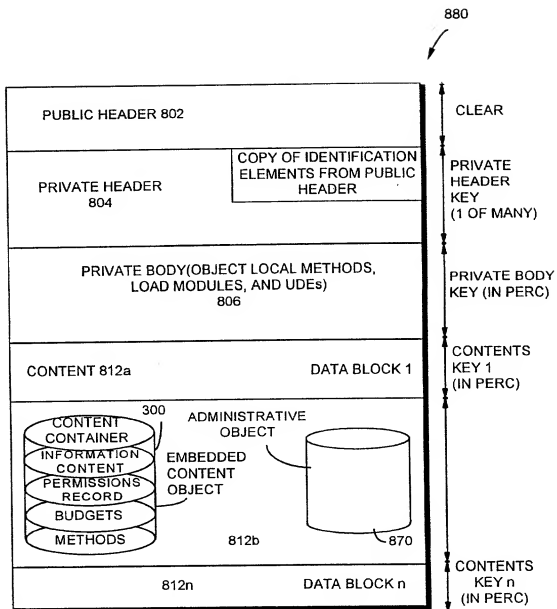


FIG. 20

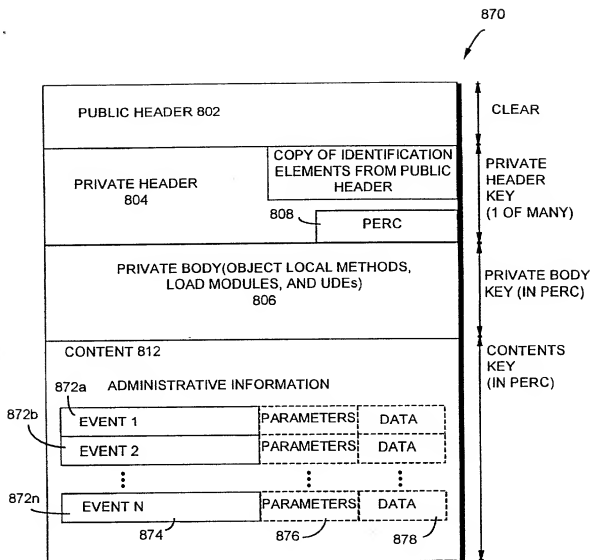


FIG. 21

FIG. 22

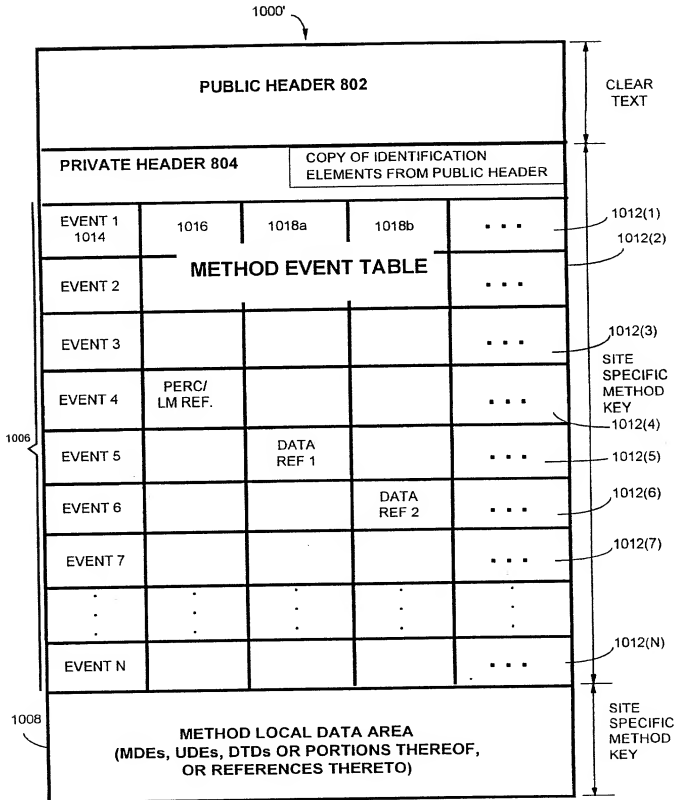


FIG. 23

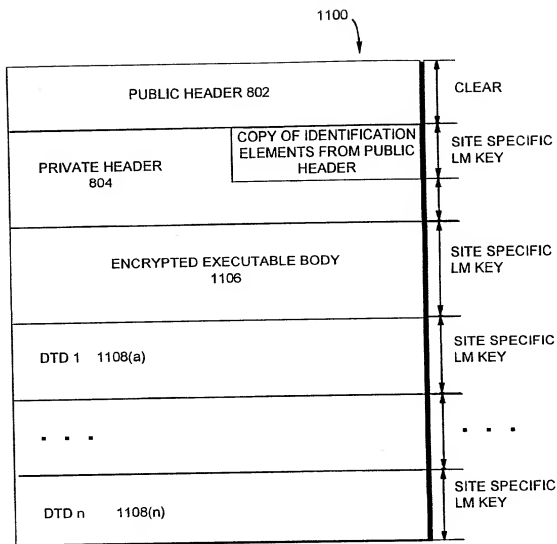


FIG. 24

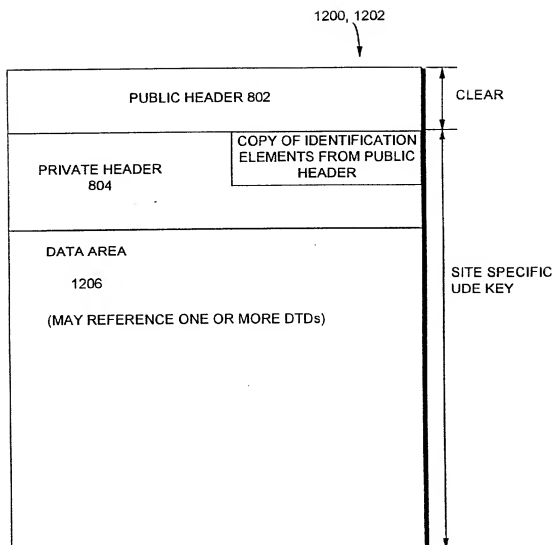


FIG. 25A

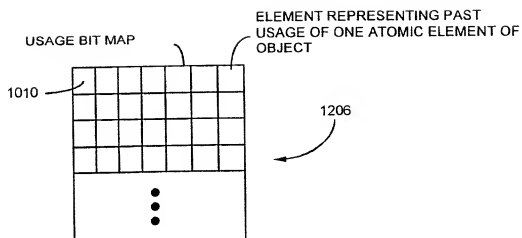


FIG. 25B

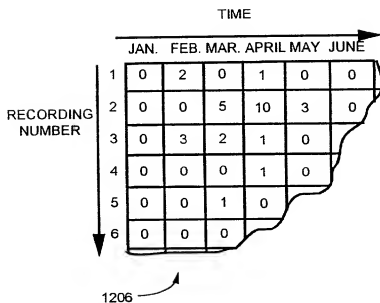


FIG. 25C

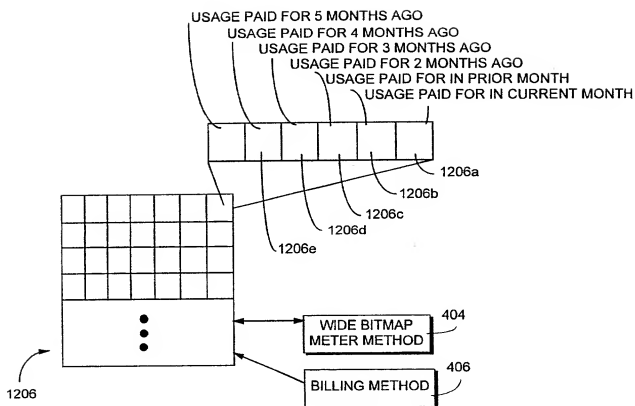


FIG. 26

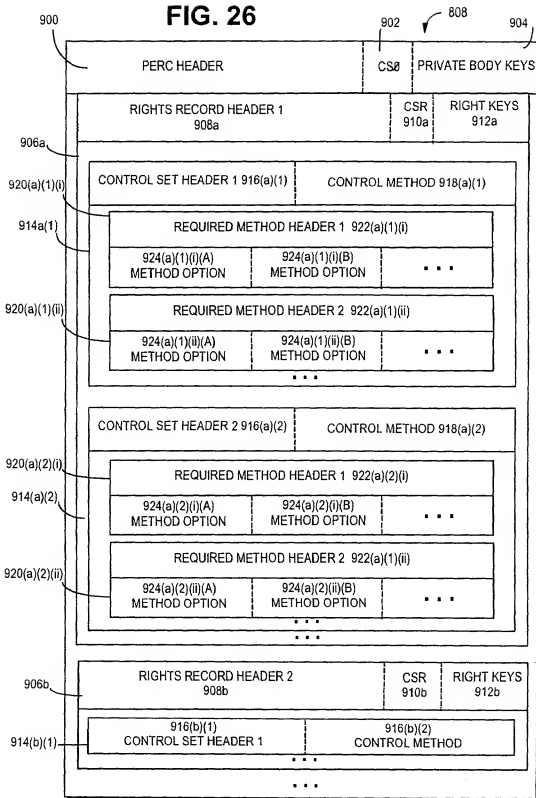


FIG. 26A

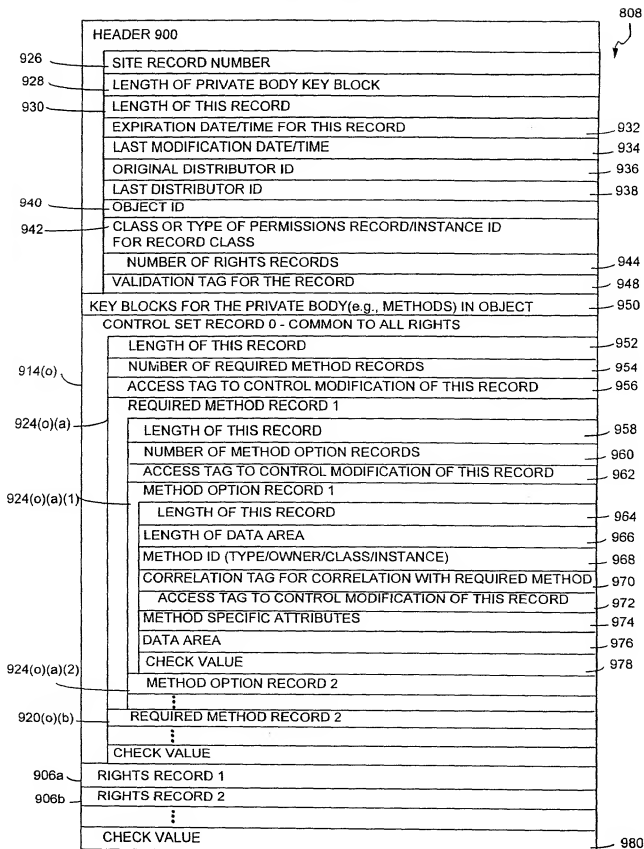


FIG. 26B

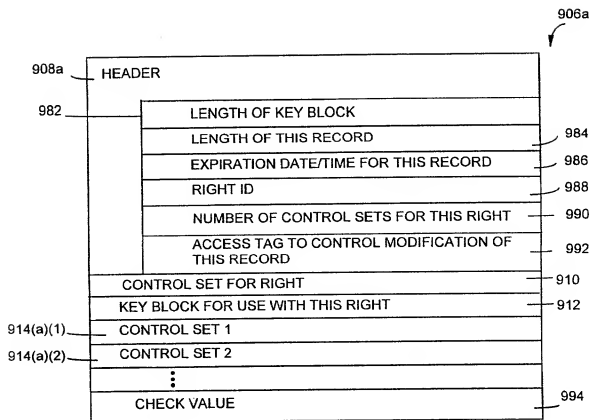


FIG. 27

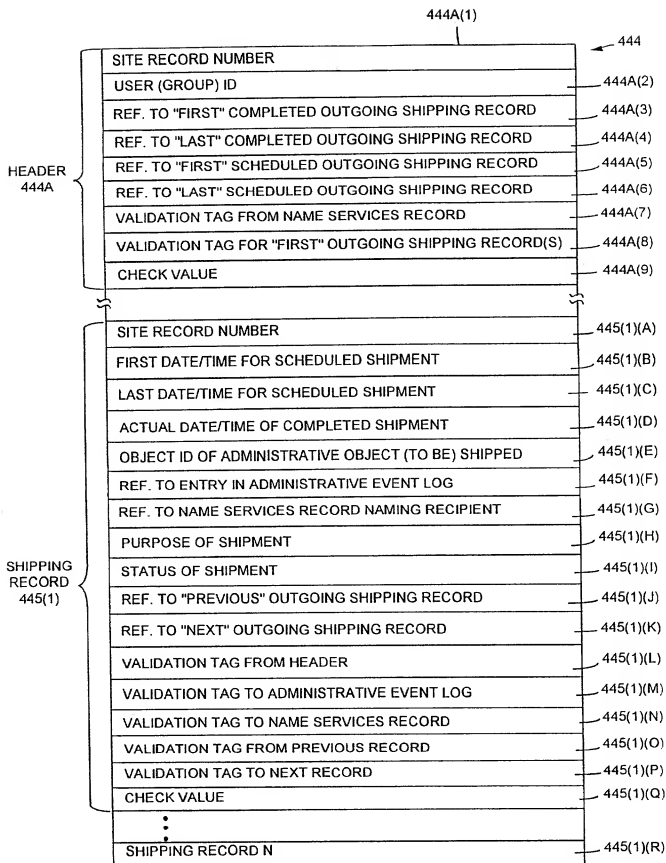


FIG. 28

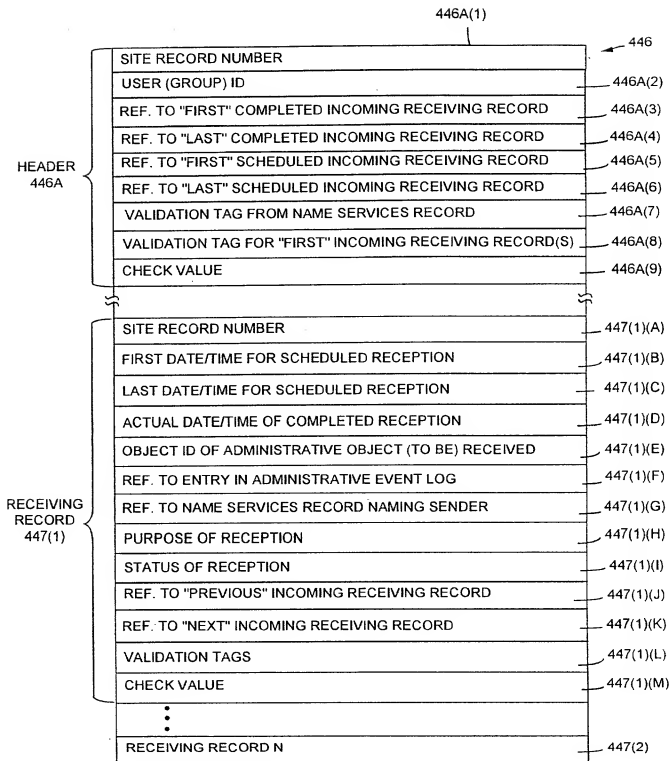


FIG. 29

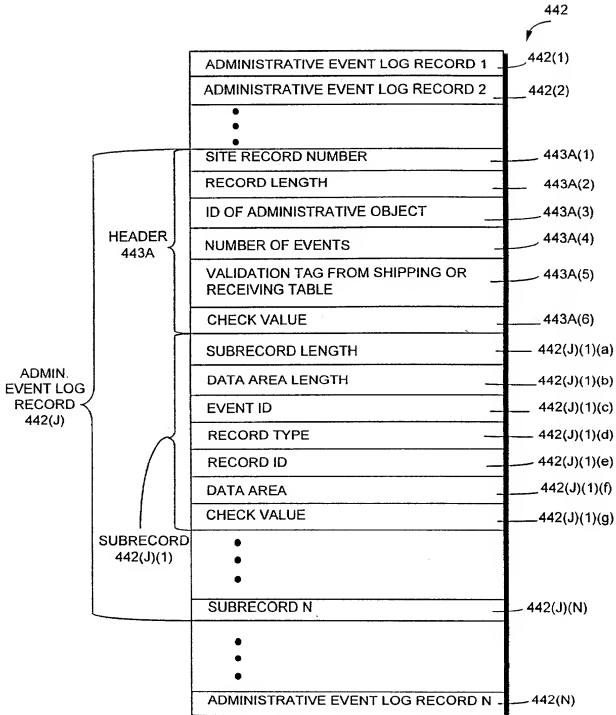
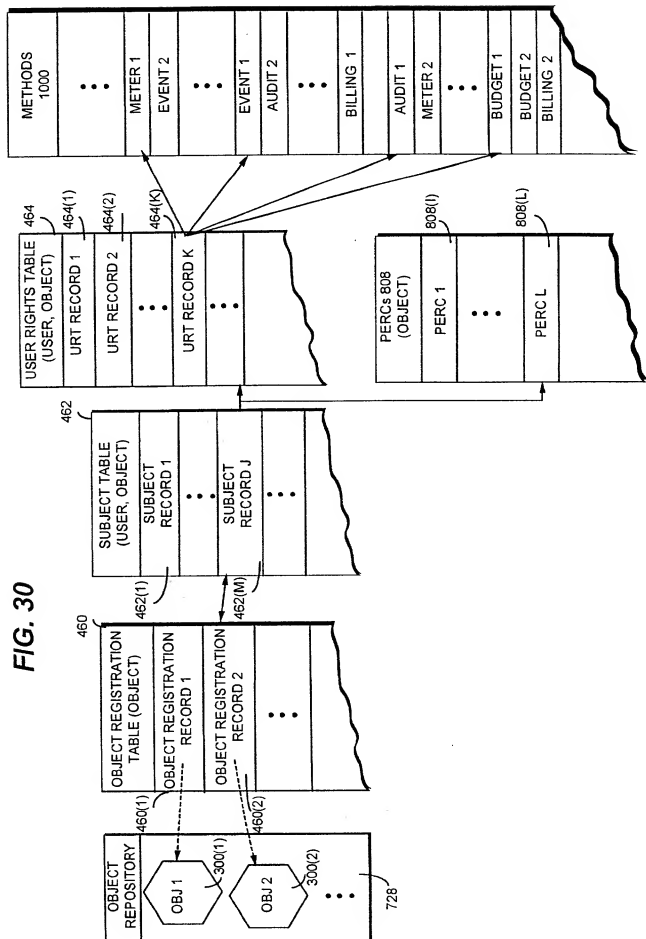


FIG. 30



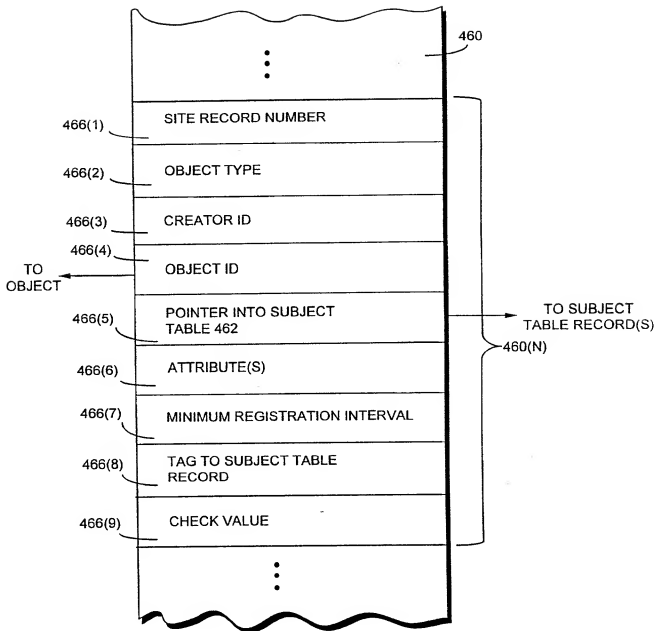


FIG. 31

FIG. 32

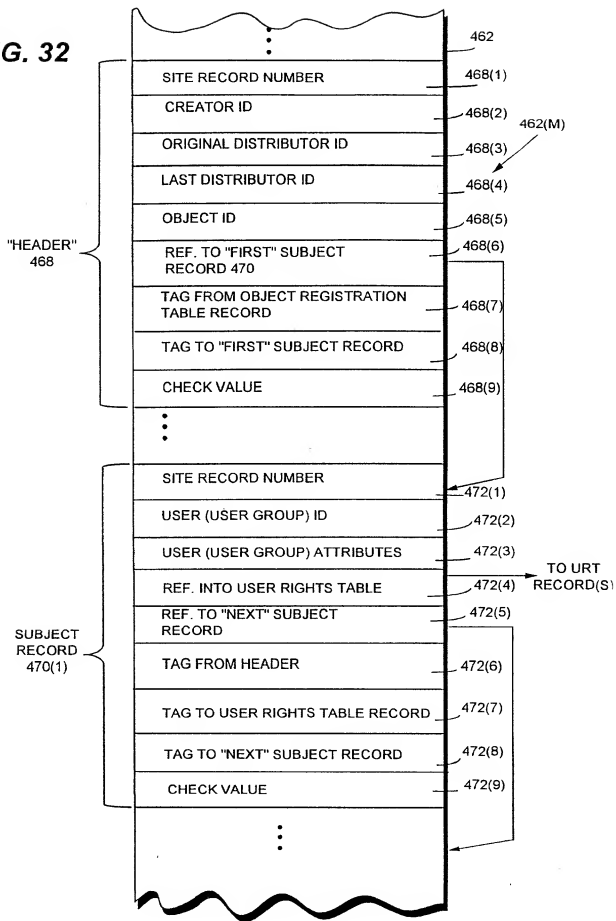


FIG. 33

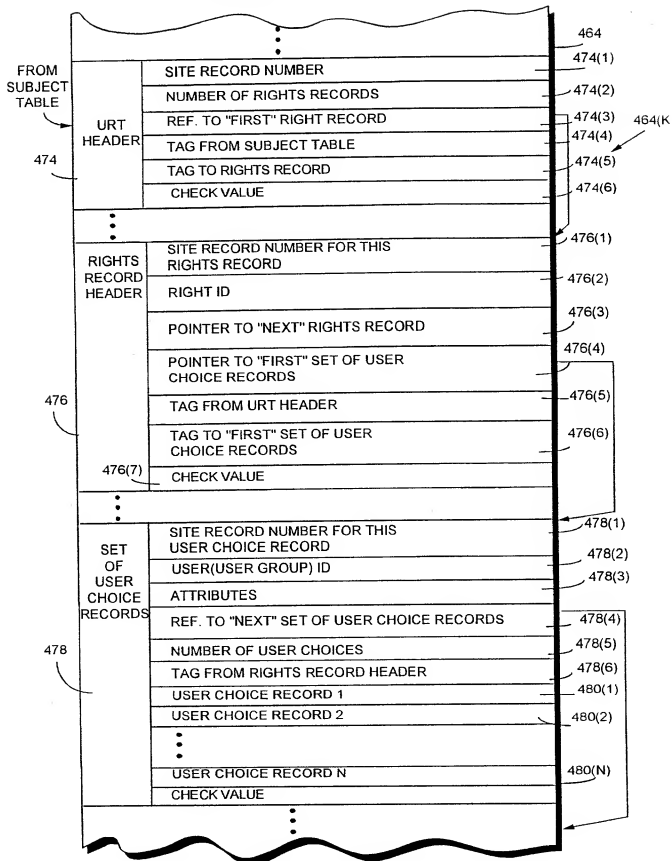


FIG. 34

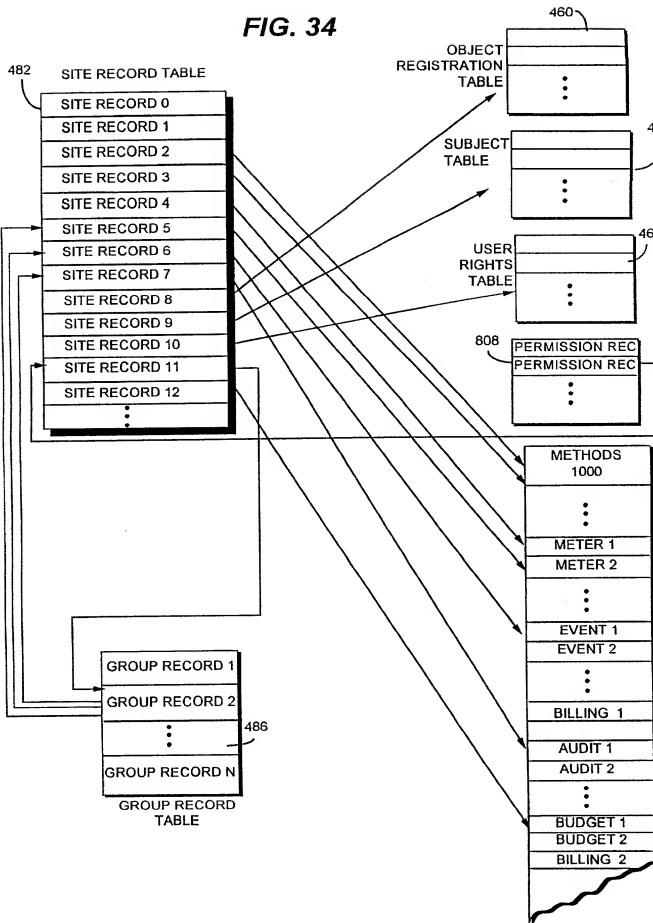


FIG. 34A

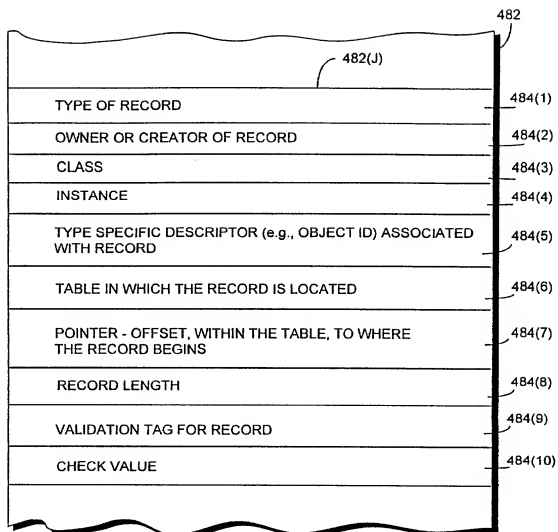
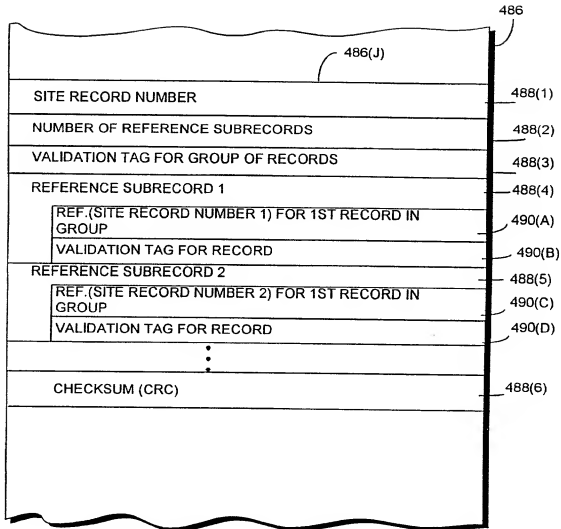


FIG. 34B



1150

START

FIG. 35

1152

APPLIANCE CALLS CLEARINGHOUSE

1154

APPLIANCE AND CLEARINGHOUSE AUTHENTICATE ONE
ANOTHER AND AGREE ON A MESSAGE KEY

1156

DOES APPLIANCE HAVE
AUDIT INFO TO SEND?

NO

YES

1158

APPLIANCE SENDS ADMINISTRATIVE OBJECT(S)
CONTAINING AUDIT INFO

1160

CLEARINGHOUSE SENDS RESPONSIVE ADMIN. OBJECT(S)

1162

APPLIANCE UPDATES SECURE DATABASE
BASED ON OBJECTS RECEIVED

1163

DOES
APPLIANCE HAVE
REQUESTS TO SEND
?

N

Y

1164

APPLIANCE SENDS ADMINISTRATIVE OBJECT(S)
REQUESTING BUDGETS AND/OR PERMISSIONS

1166

CLEARINGHOUSE SENDS RESPONSIVE
ADMINISTRATIVE OBJECT(S)

1168

APPLIANCE UPDATES SECURE DATABASE BASED
ON OBJECTS RECEIVED

END

1150
1152
1154
1156
1158
1160
1162
1163
1164
1166
1168
END

FIG. 36

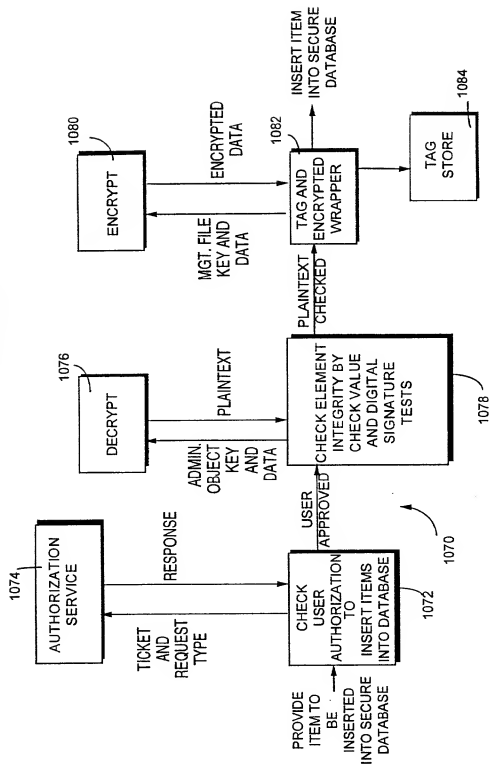


FIG. 38

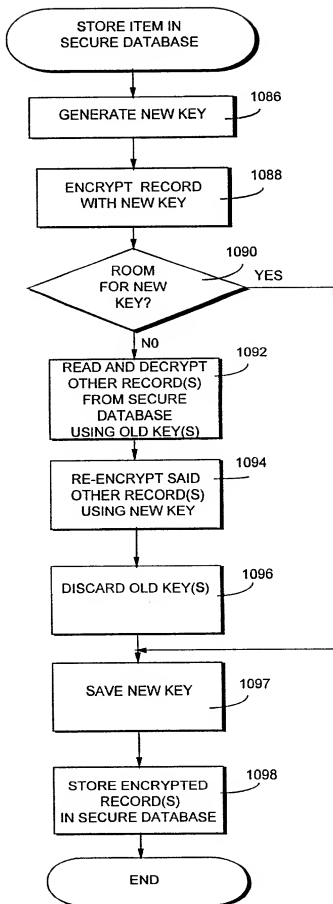


FIG. 39

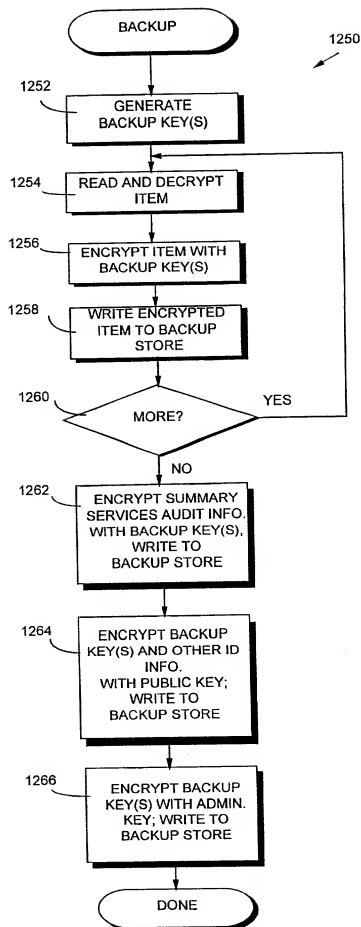
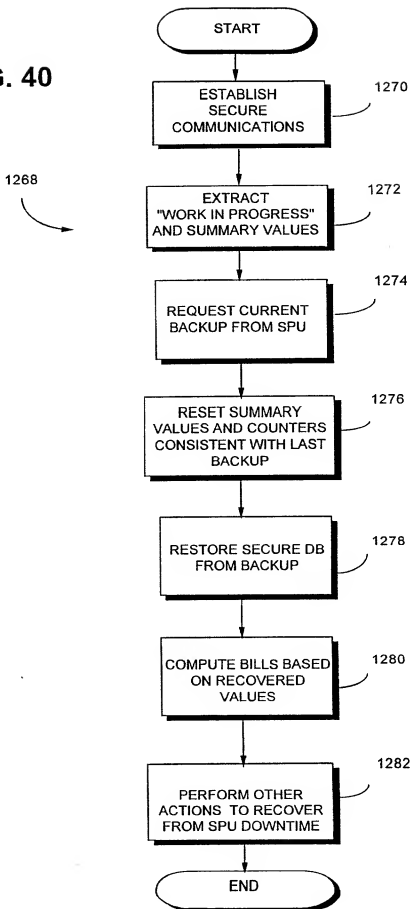


FIG. 40



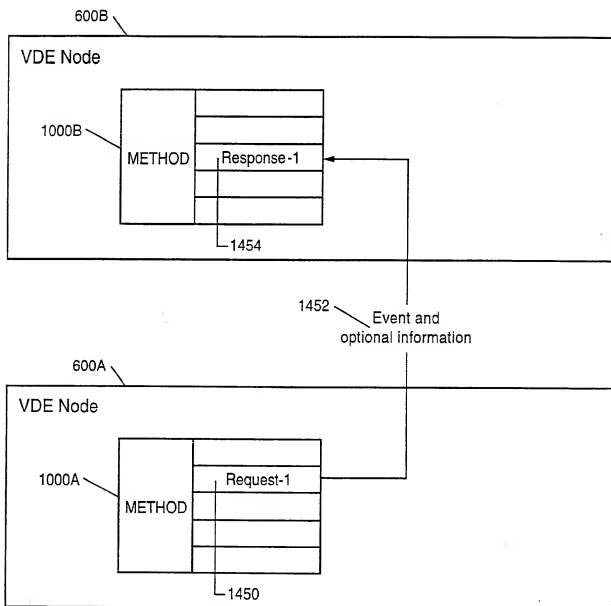


FIG. 41a

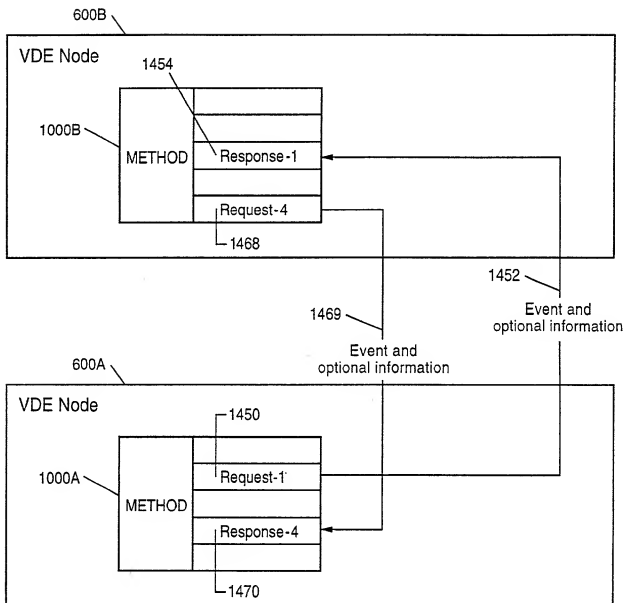


FIG. 41b

FIG. 41c

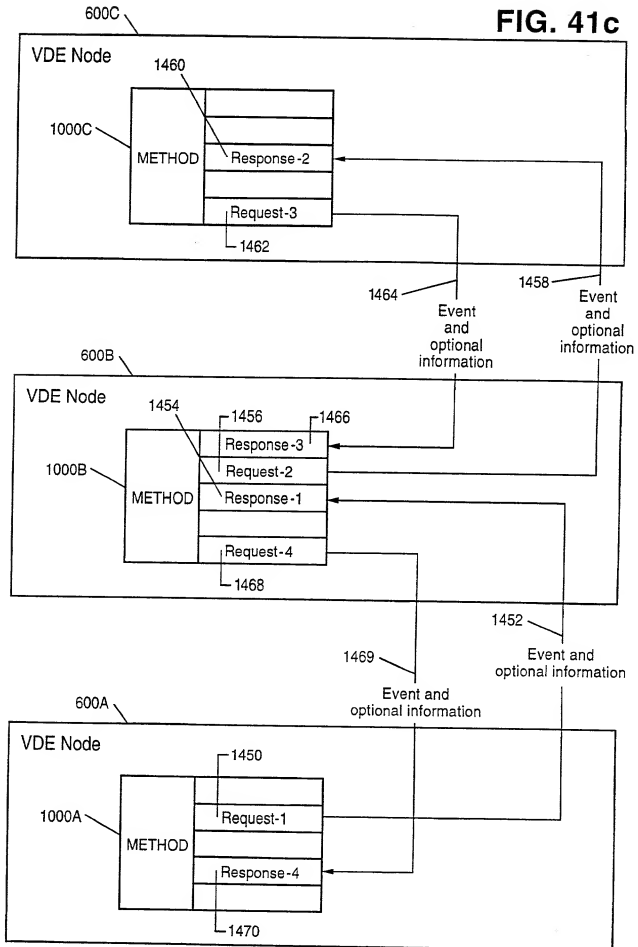
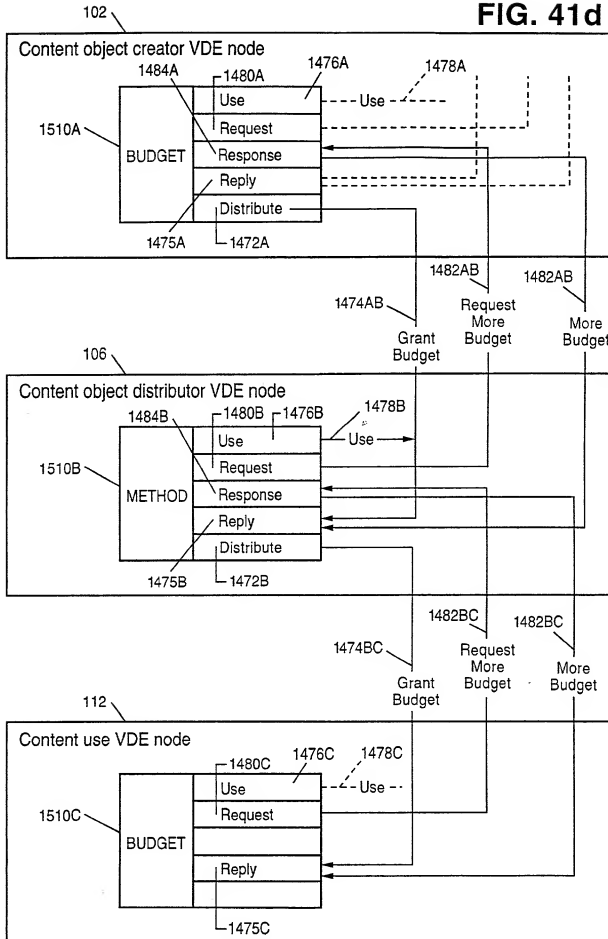


FIG. 41d



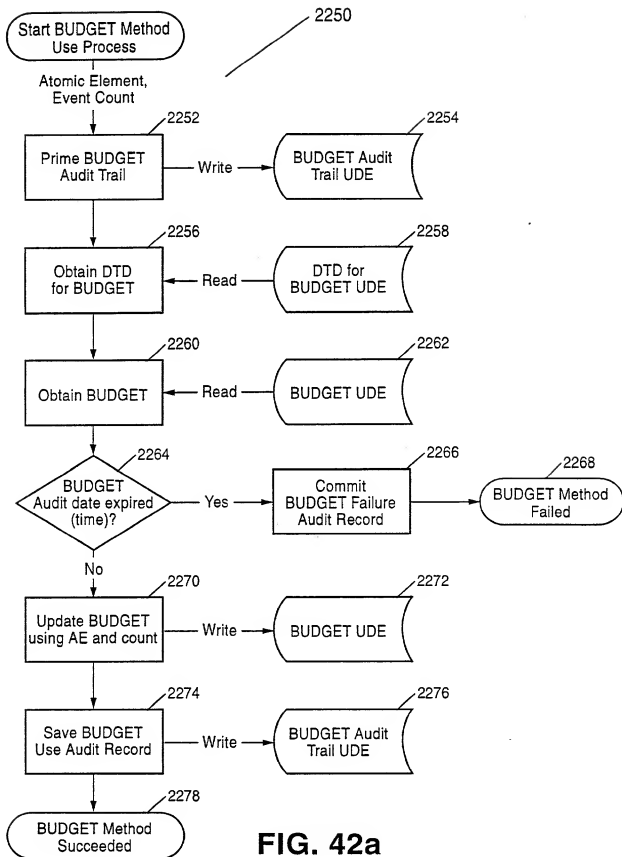


FIG. 42a

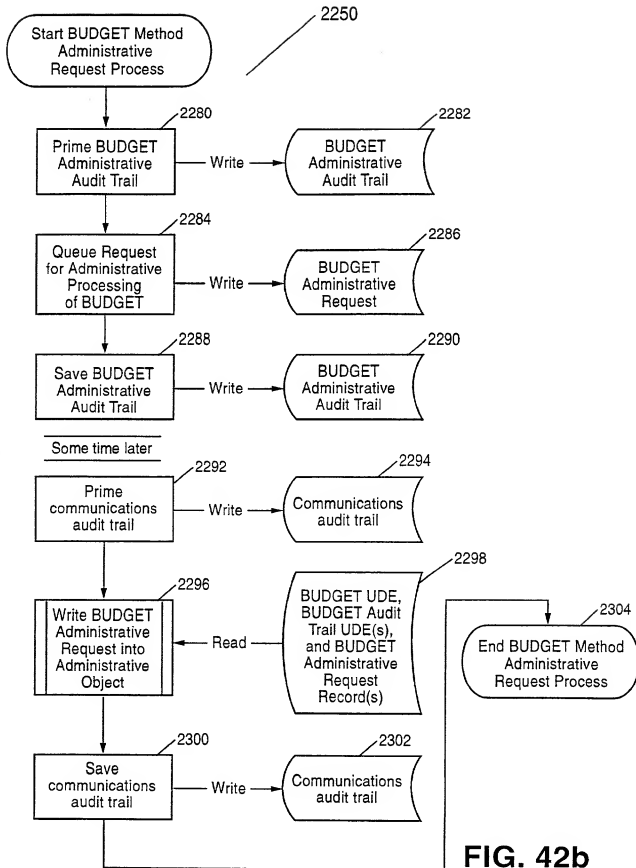
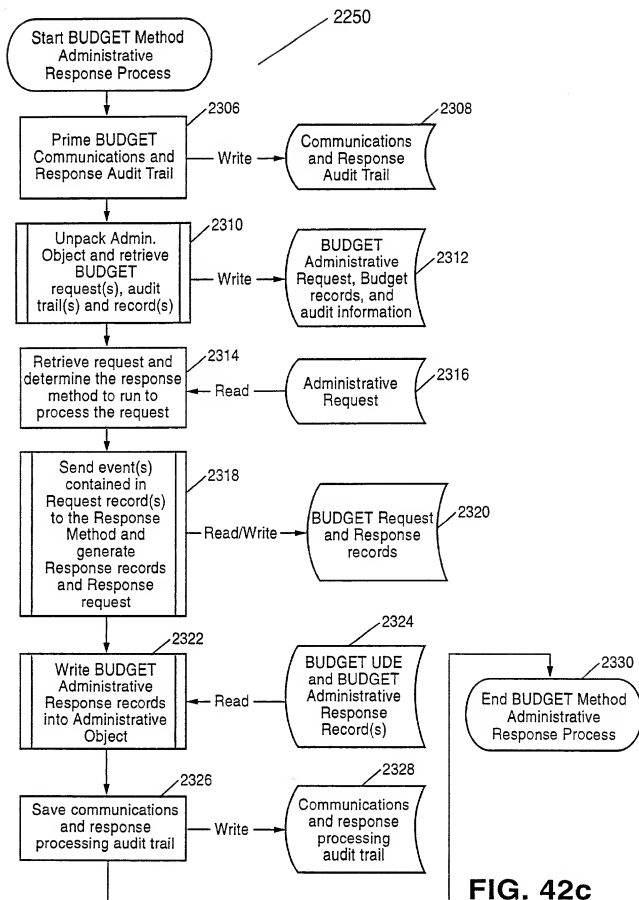


FIG. 42b



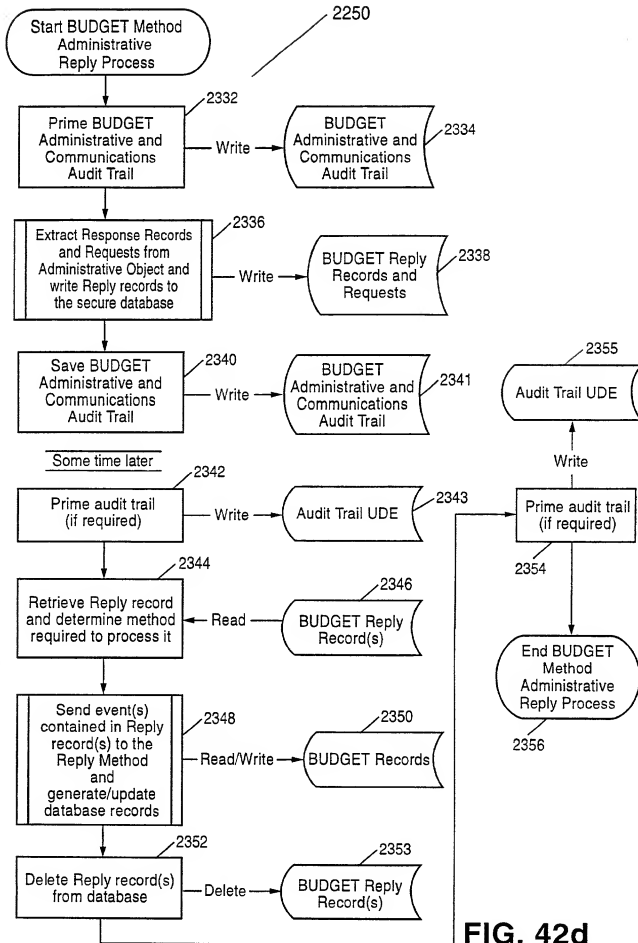


FIG. 42d

FIG. 43a

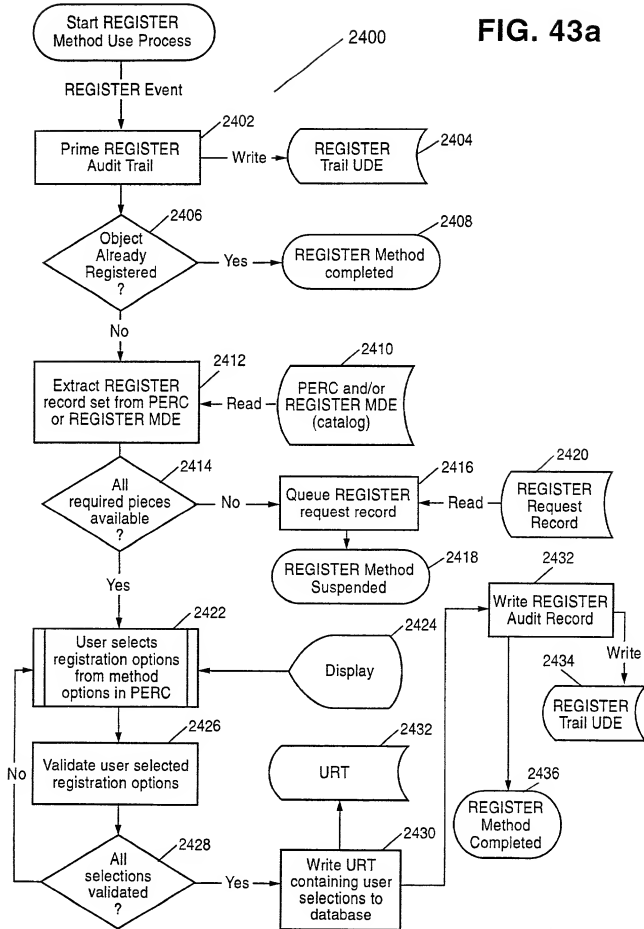


FIG. 43b

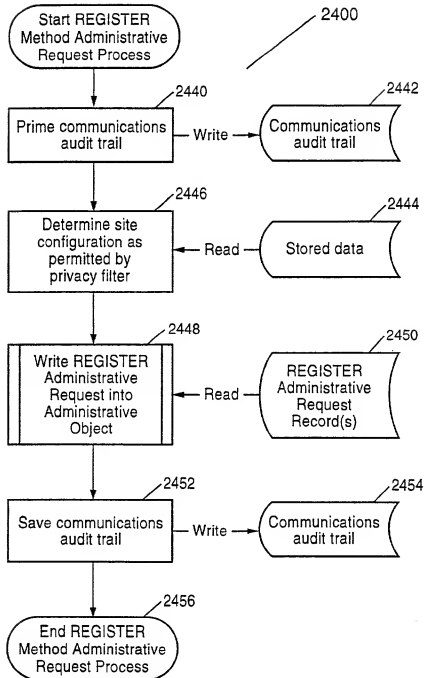


FIG. 43c

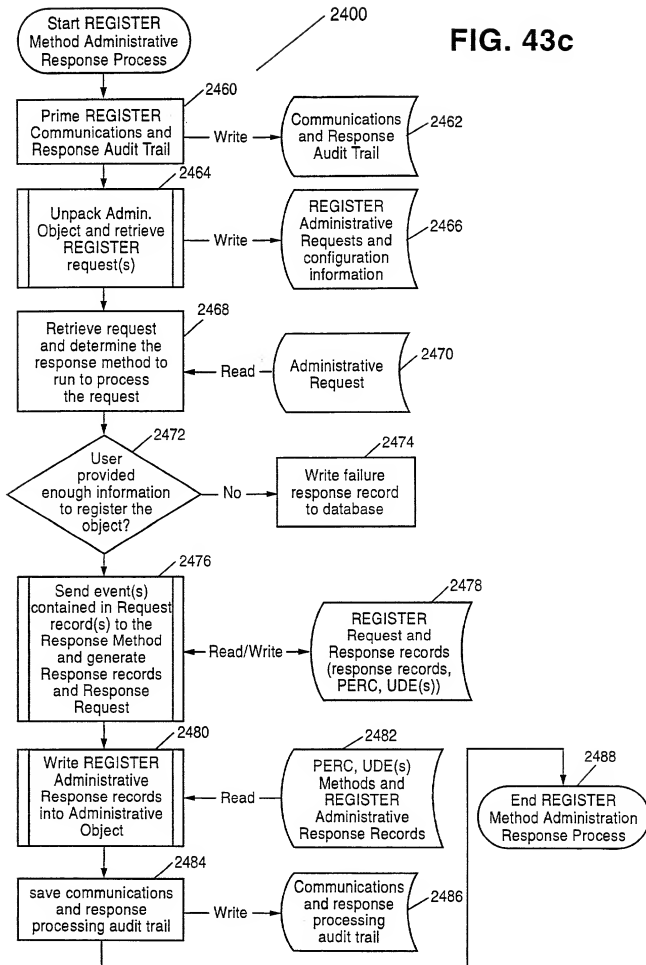


FIG. 43d

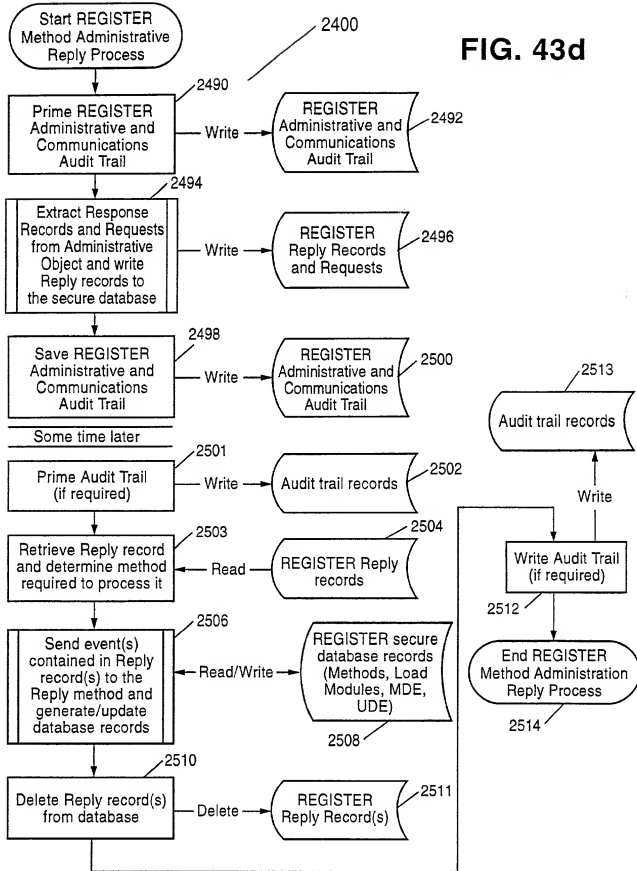


FIG. 44a

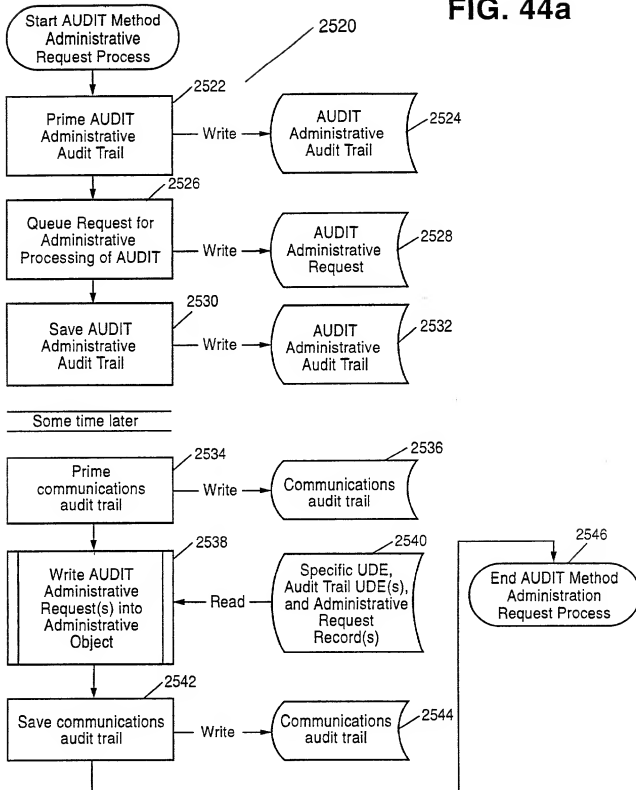


FIG. 44b

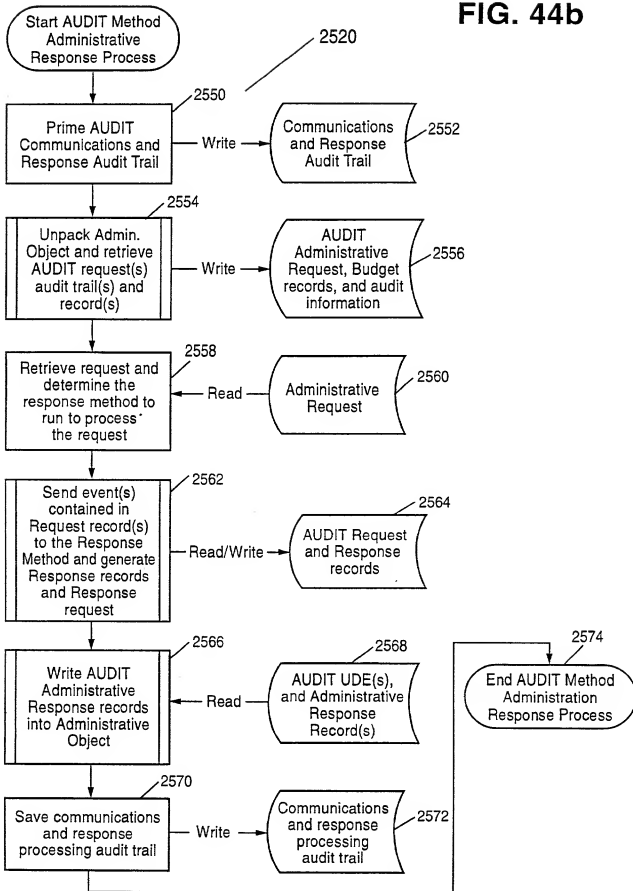


FIG. 44c

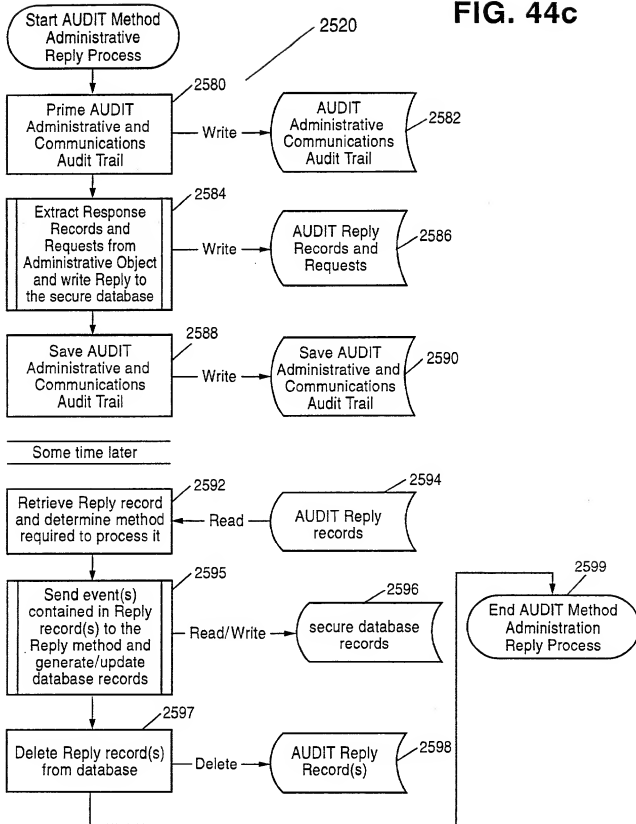


FIG. 45

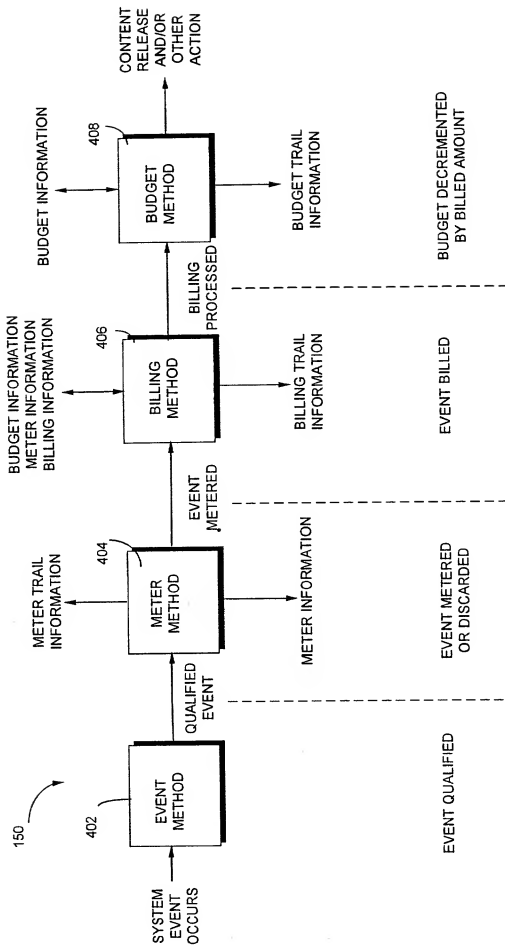


FIG. 46

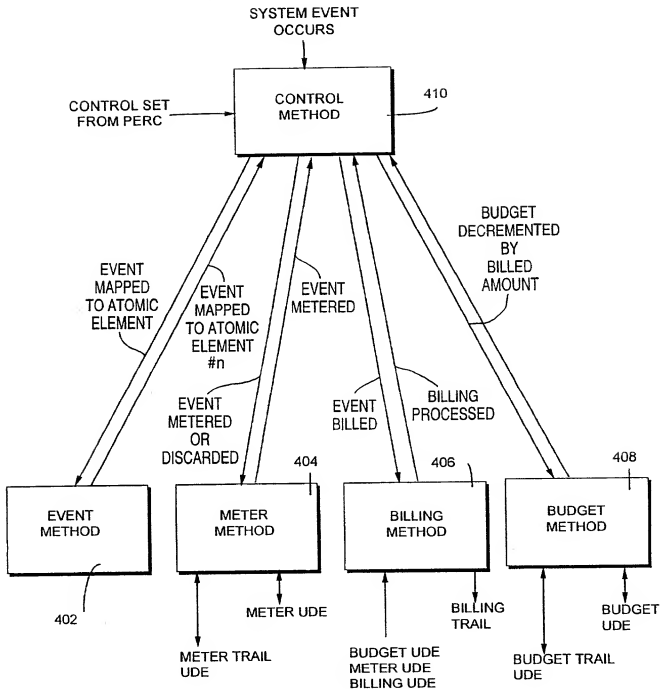
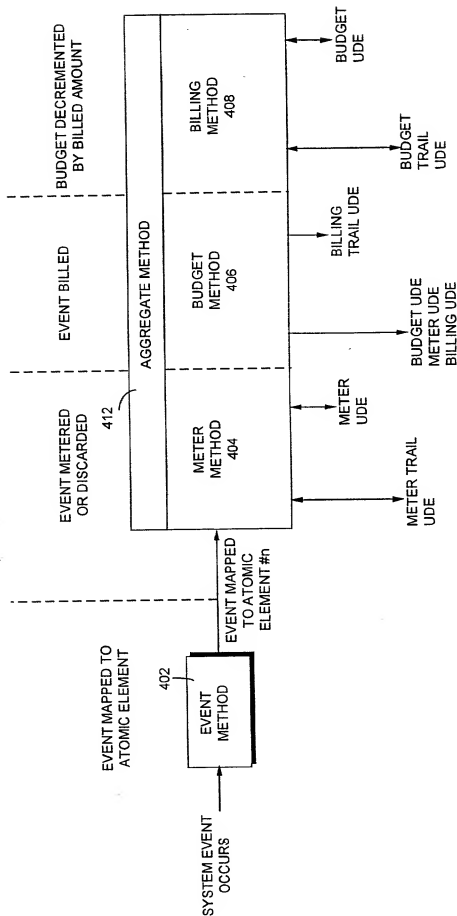


FIG. 47



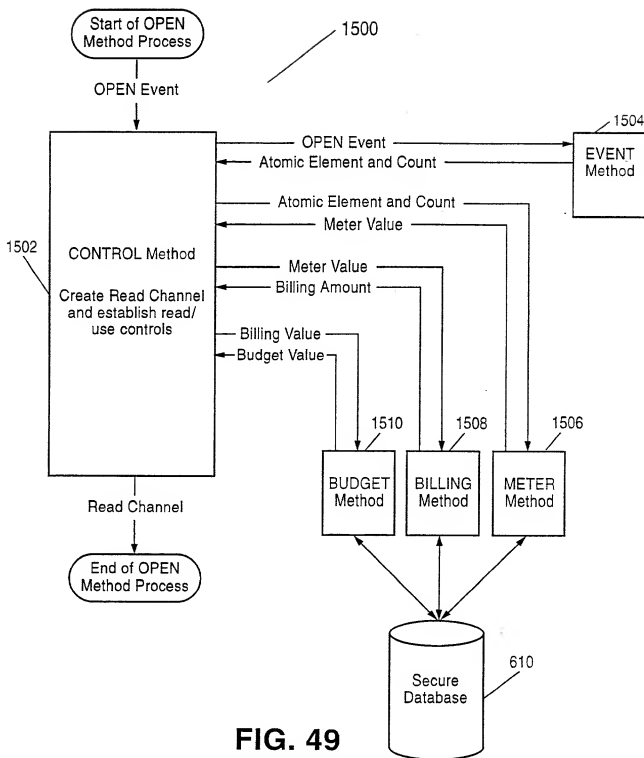


FIG. 49

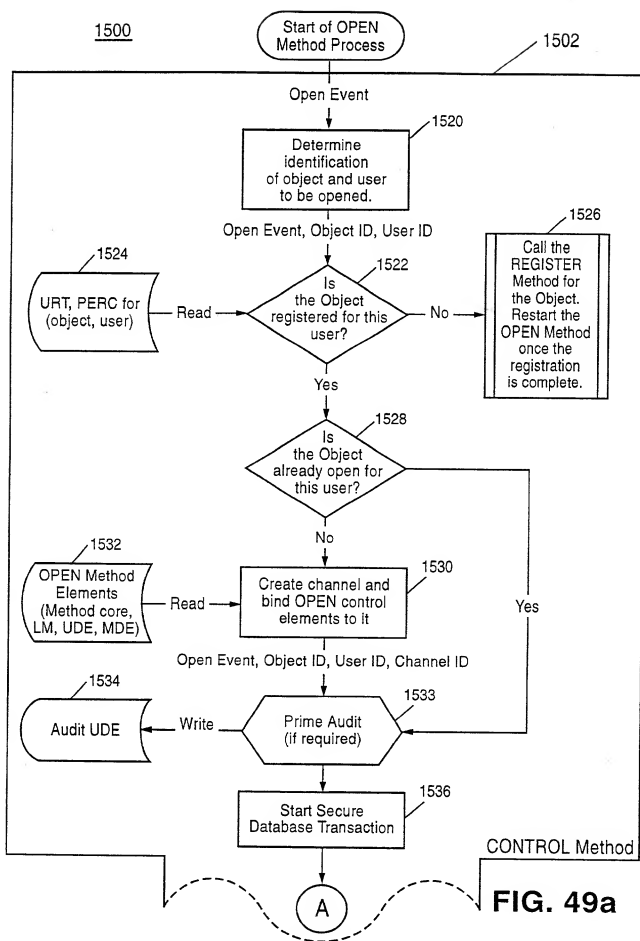


FIG. 49a

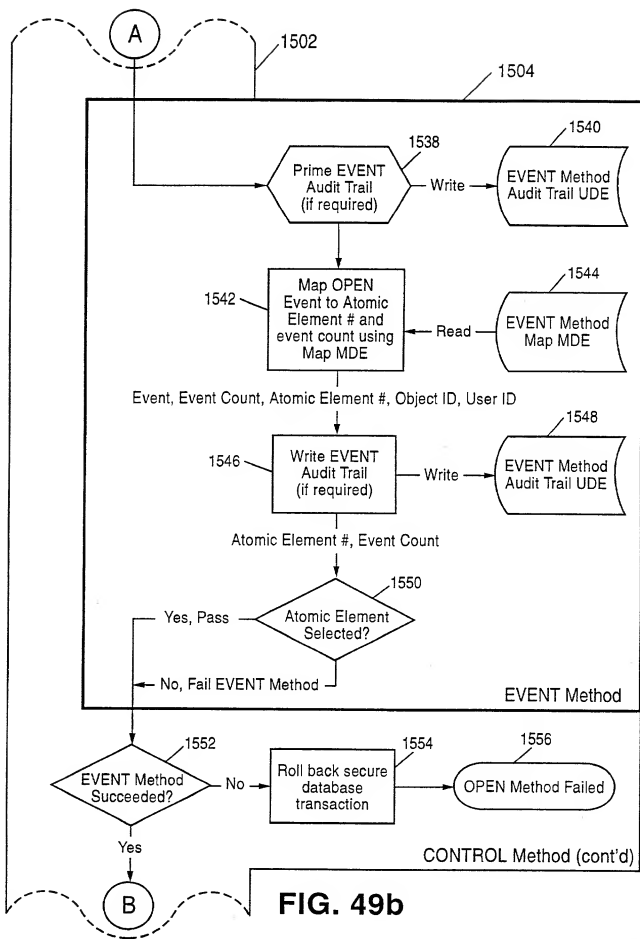
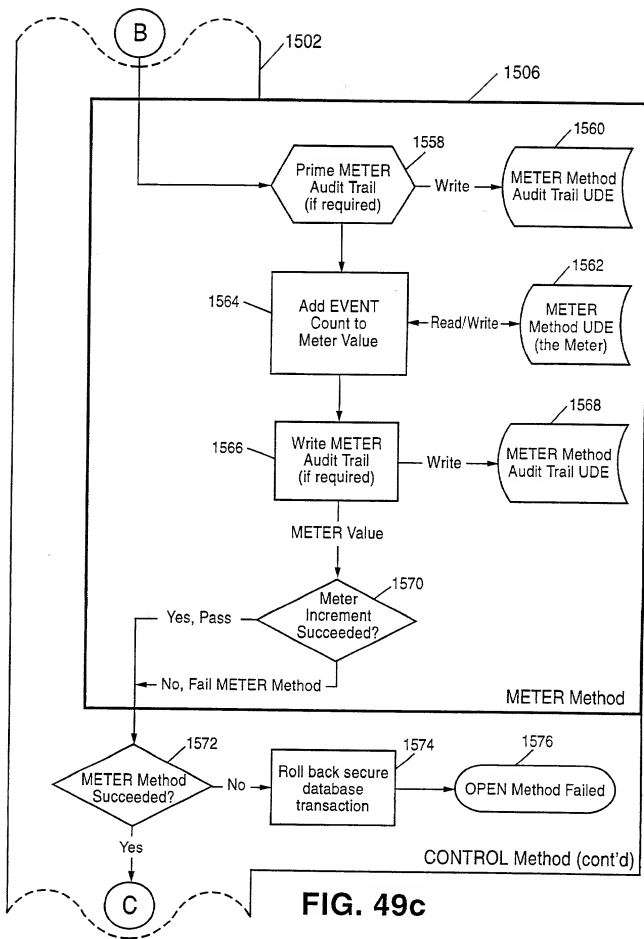


FIG. 49b



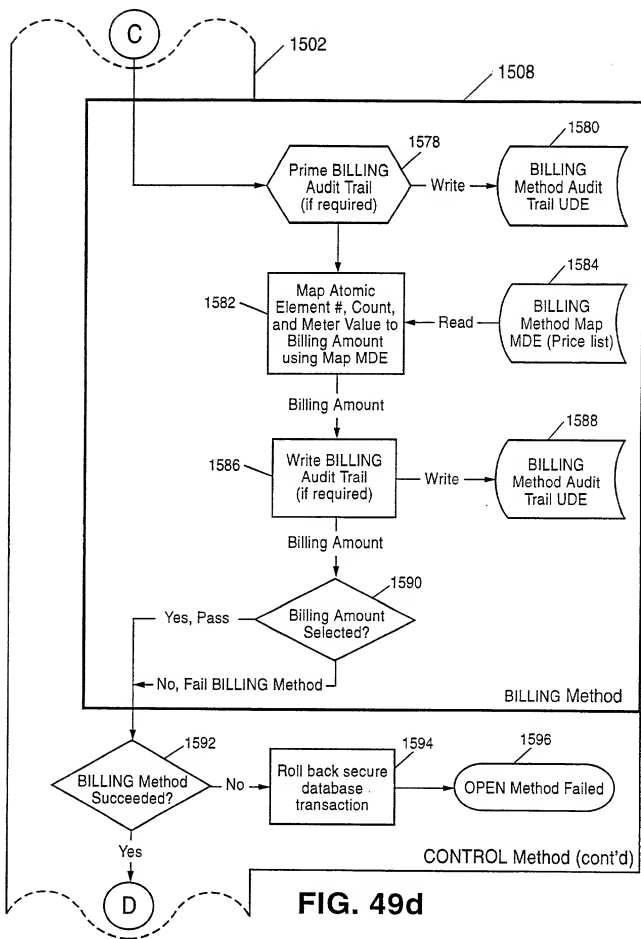


FIG. 49d

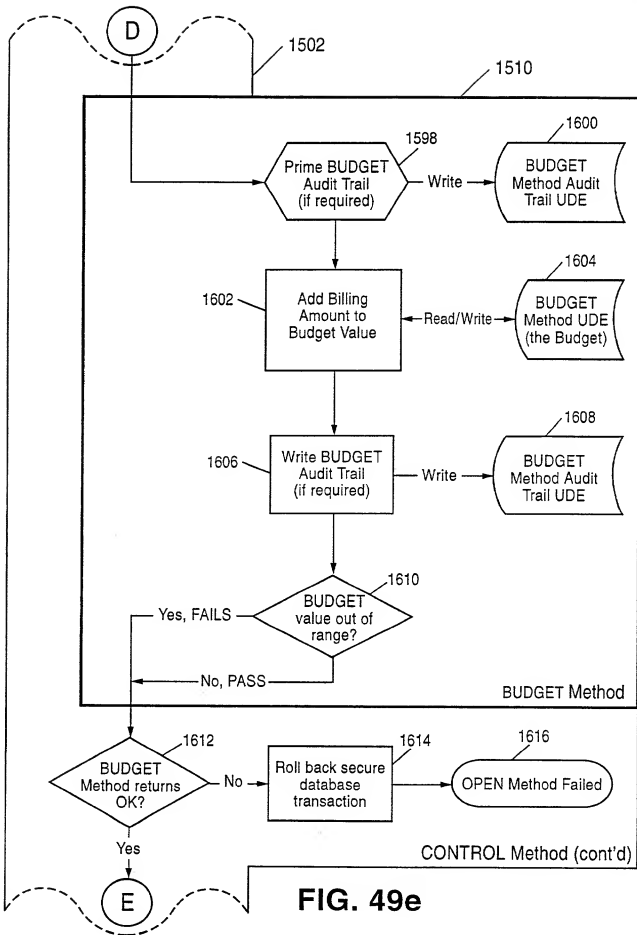


FIG. 49e

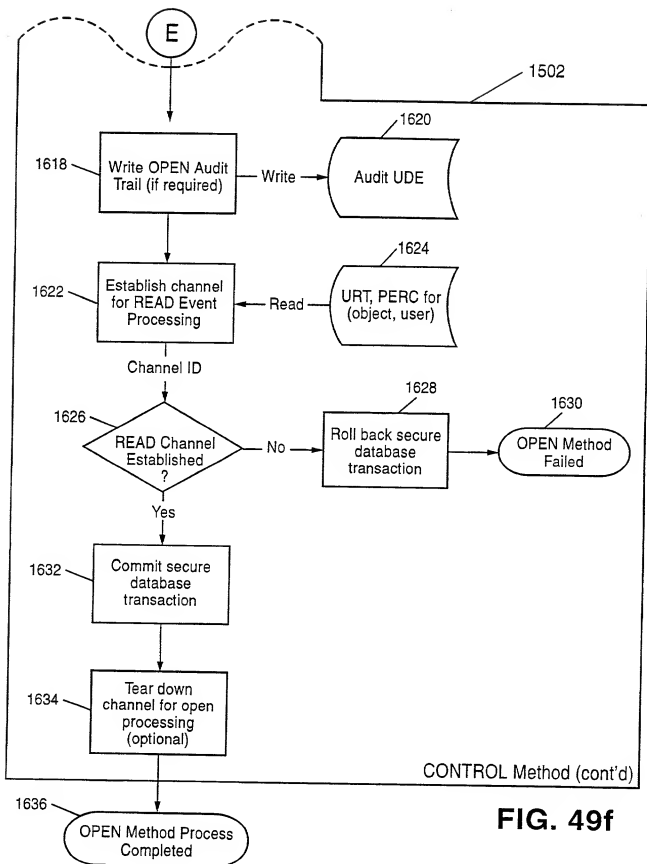
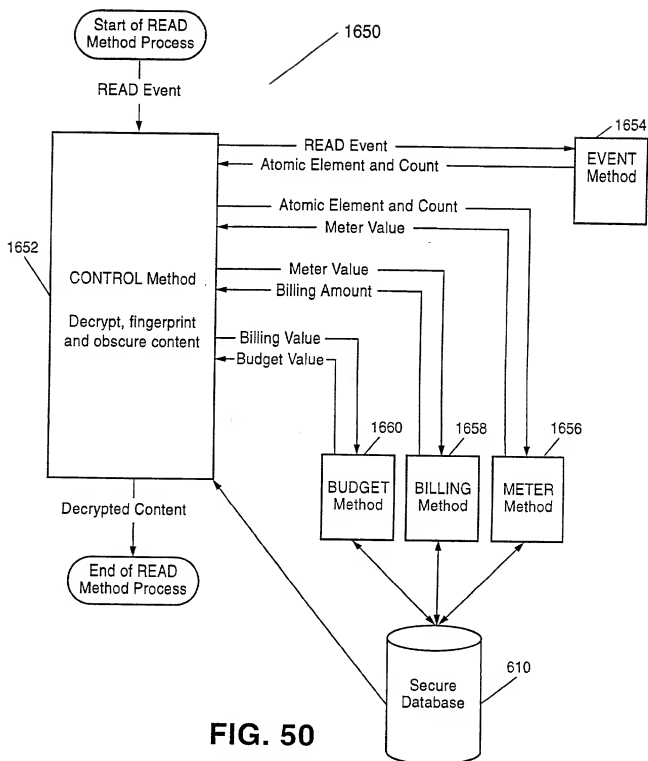


FIG. 49f



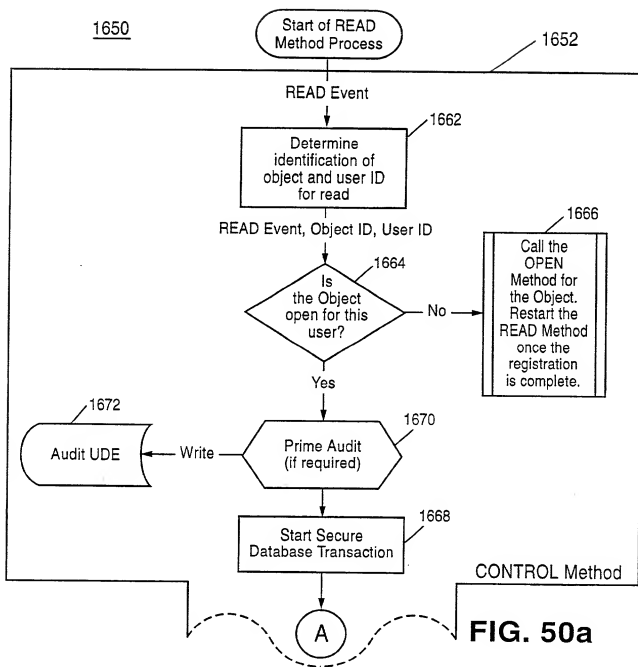


FIG. 50a

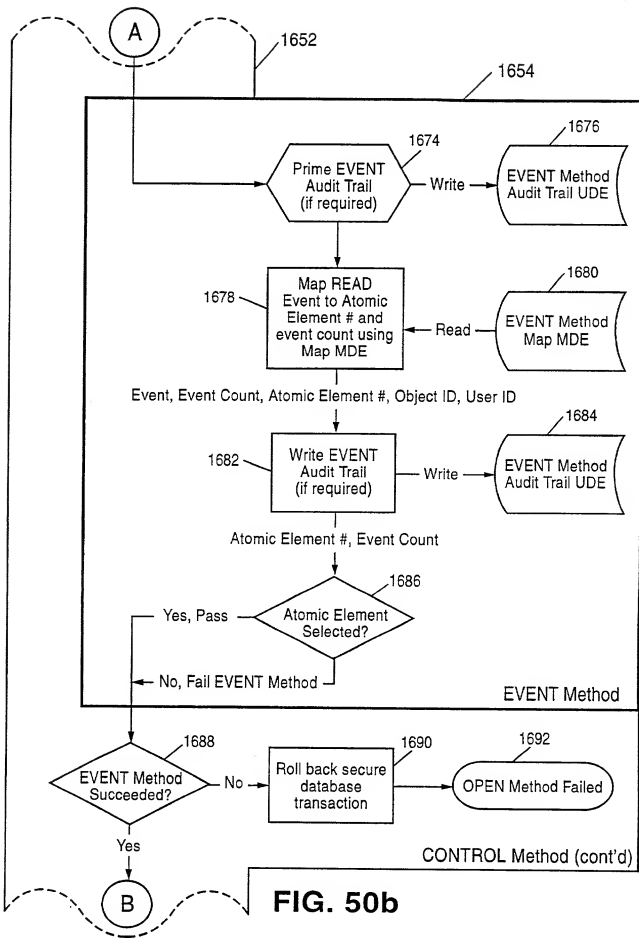


FIG. 50b

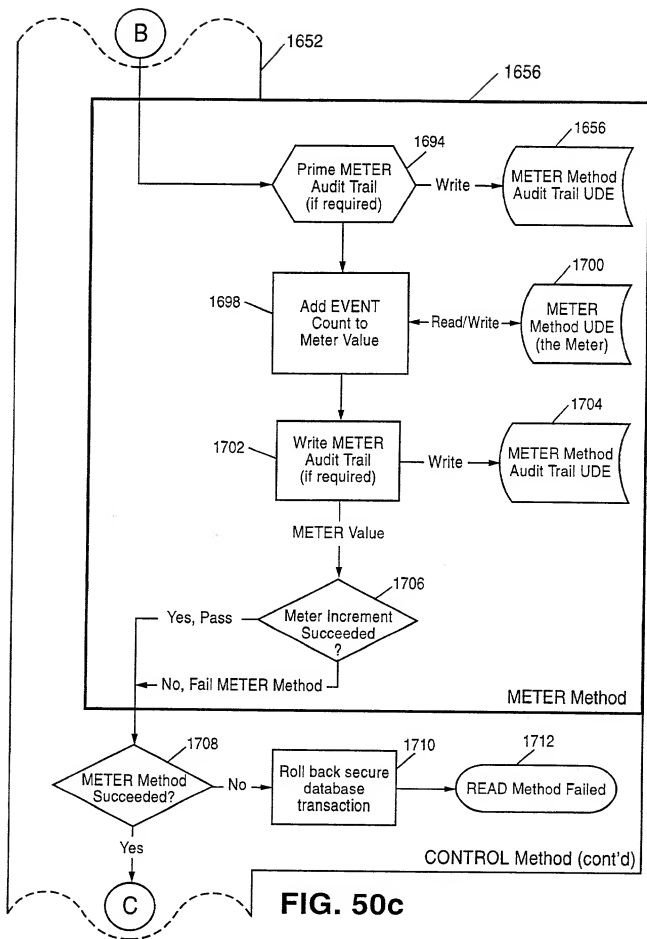


FIG. 50c

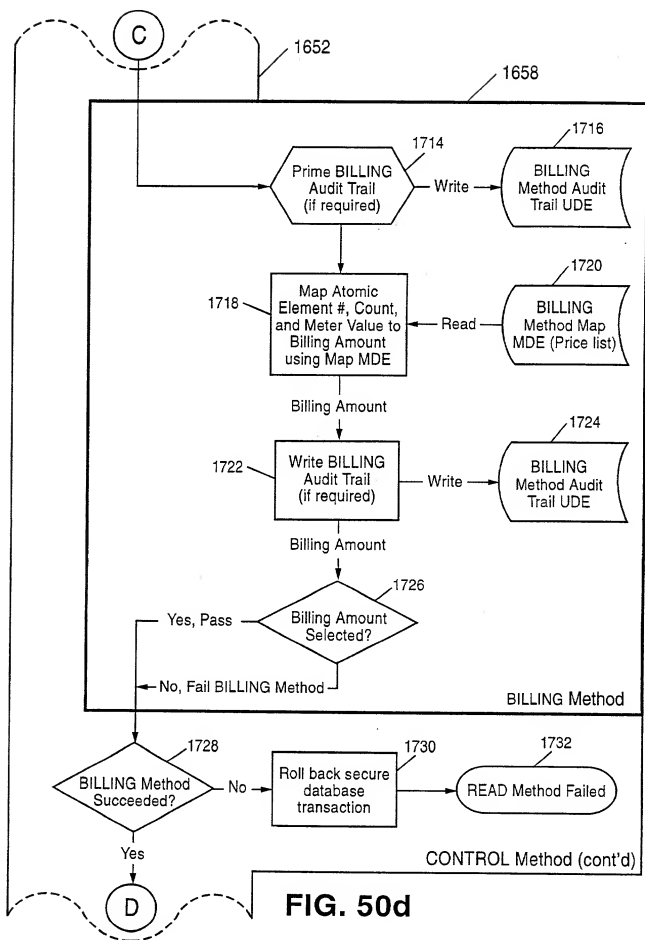


FIG. 50d

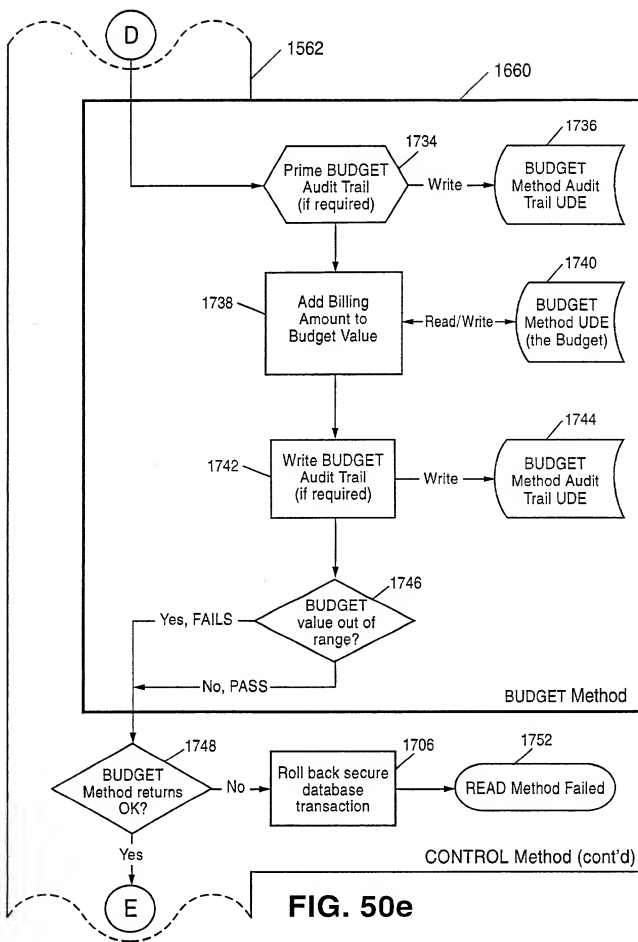
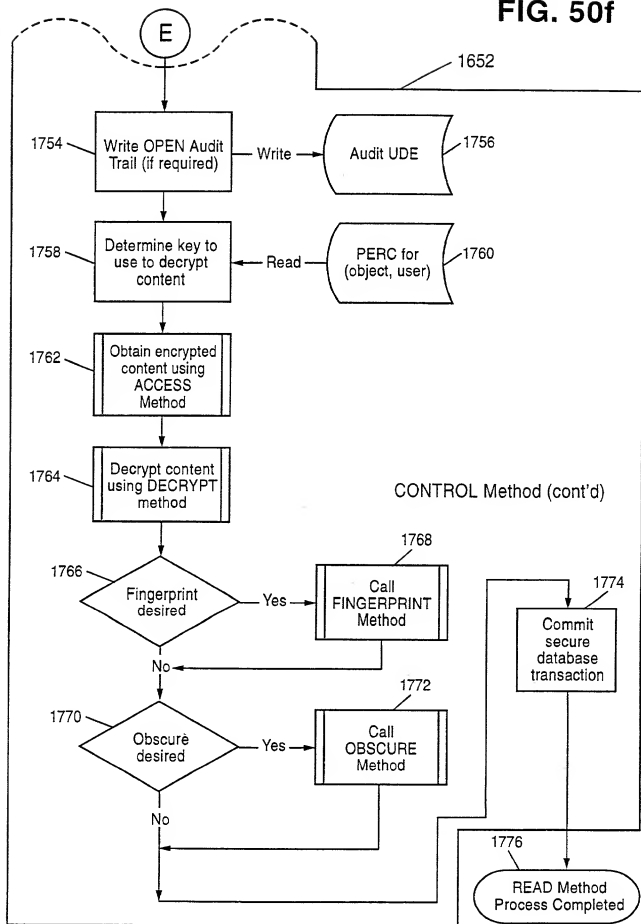
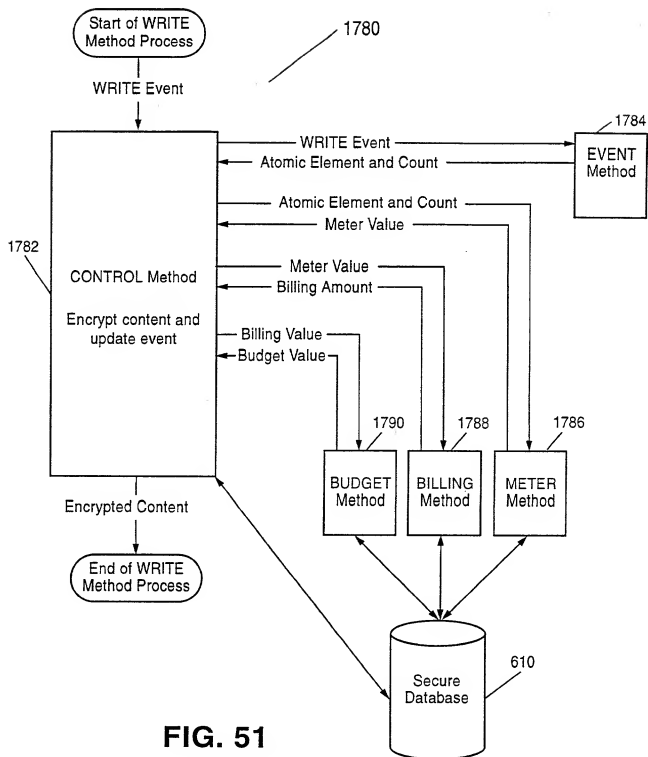


FIG. 50e

FIG. 50f





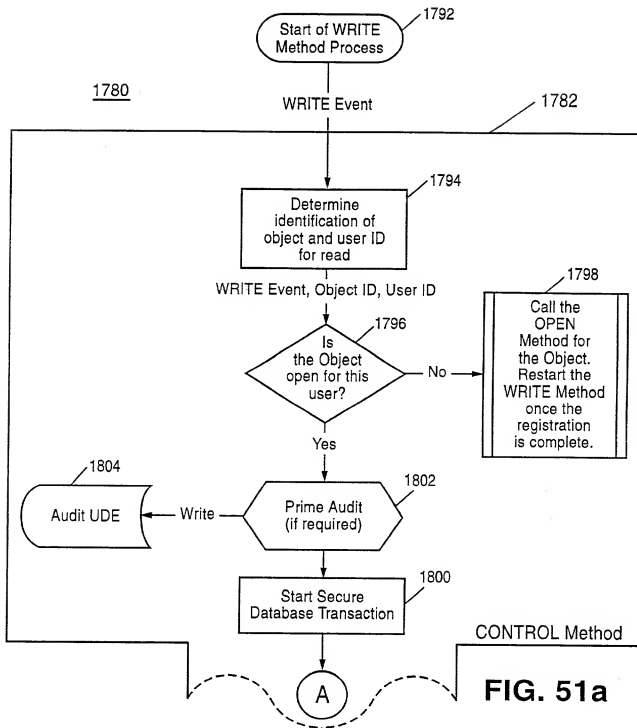


FIG. 51a

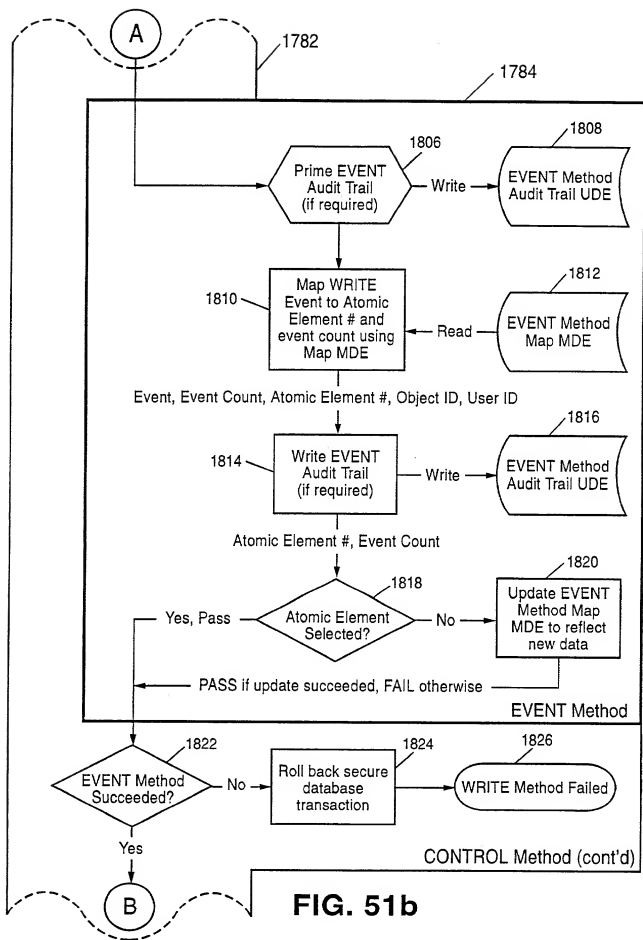


FIG. 51b

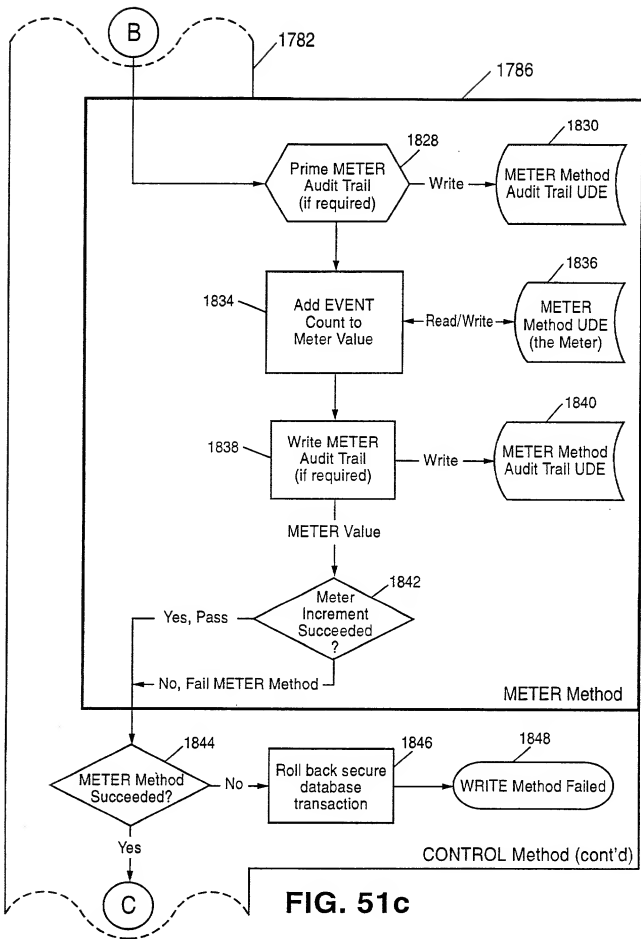


FIG. 51c

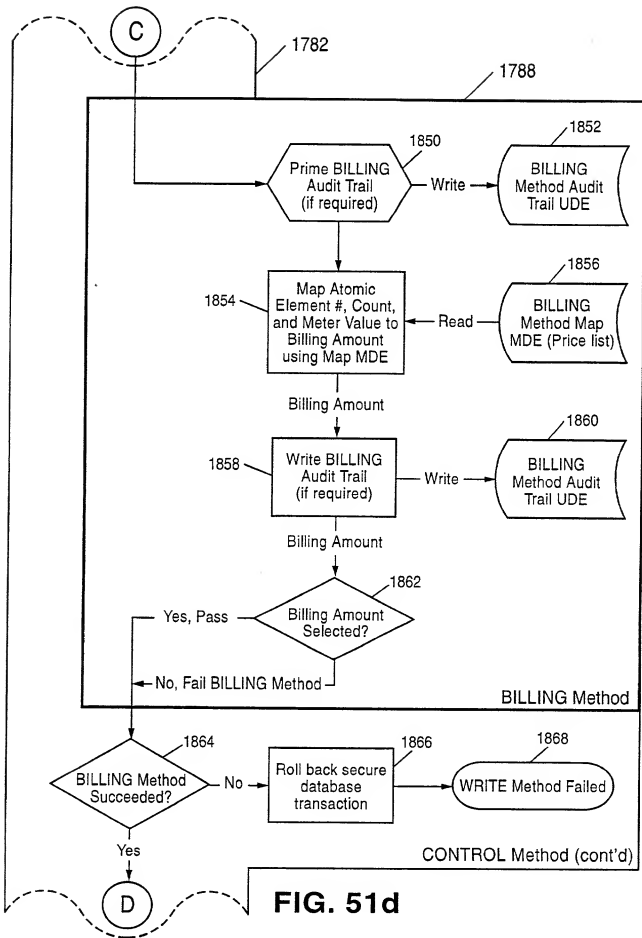


FIG. 51d

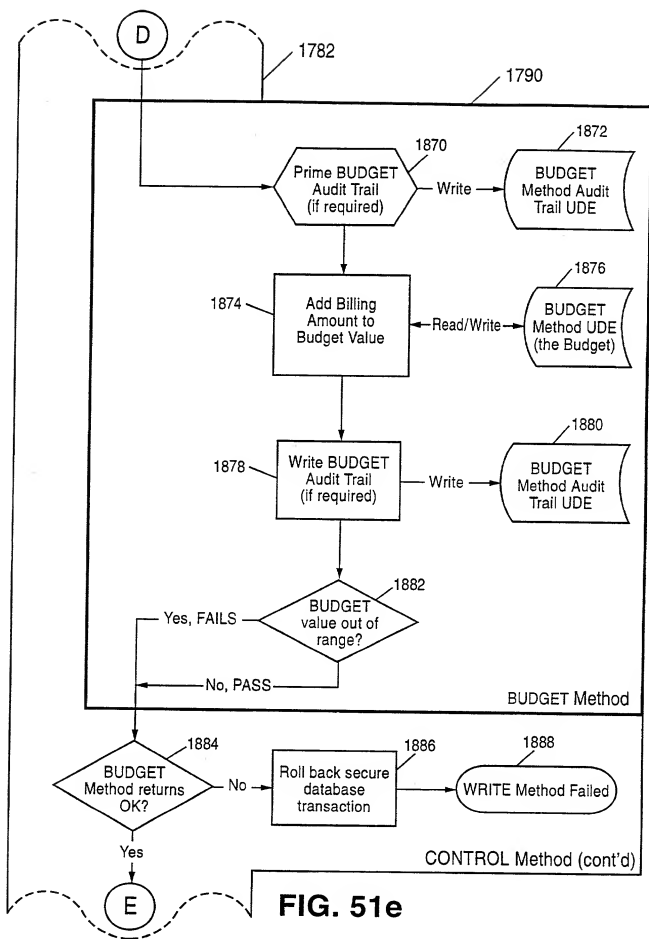
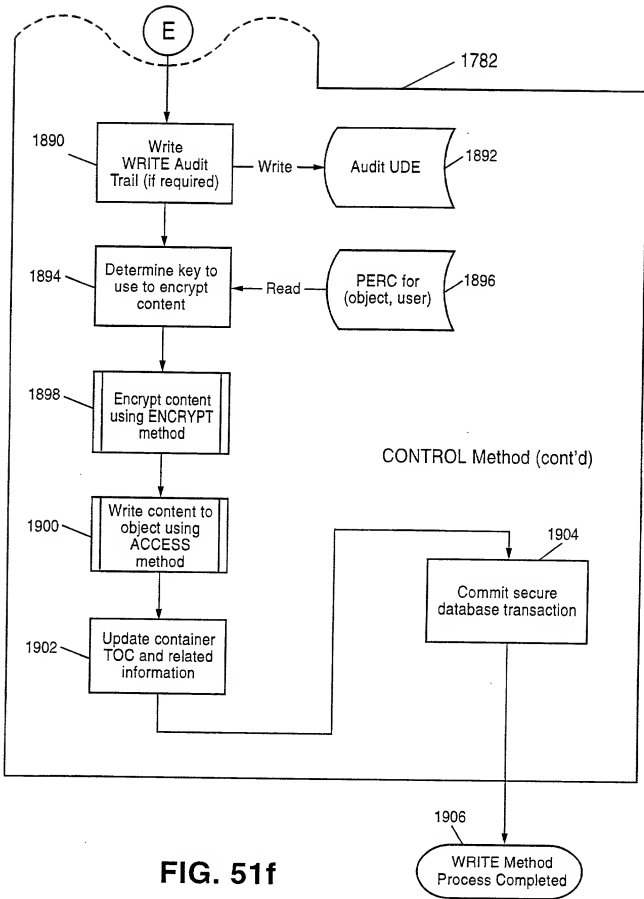


FIG. 51e



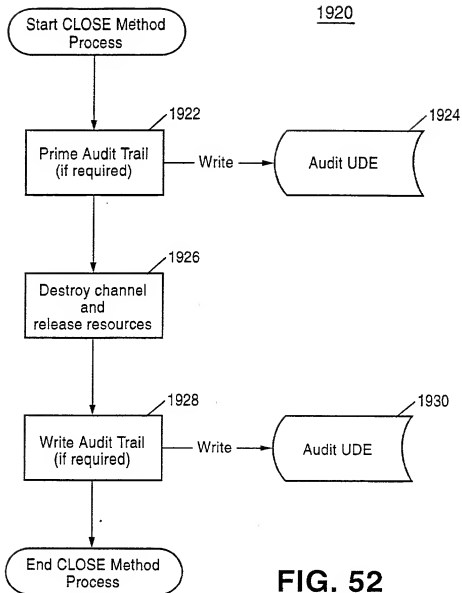


FIG. 52

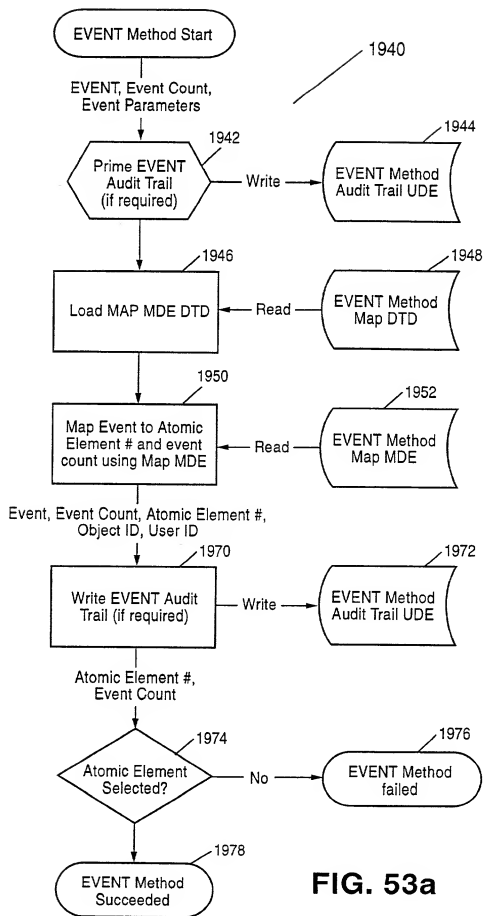


FIG. 53a

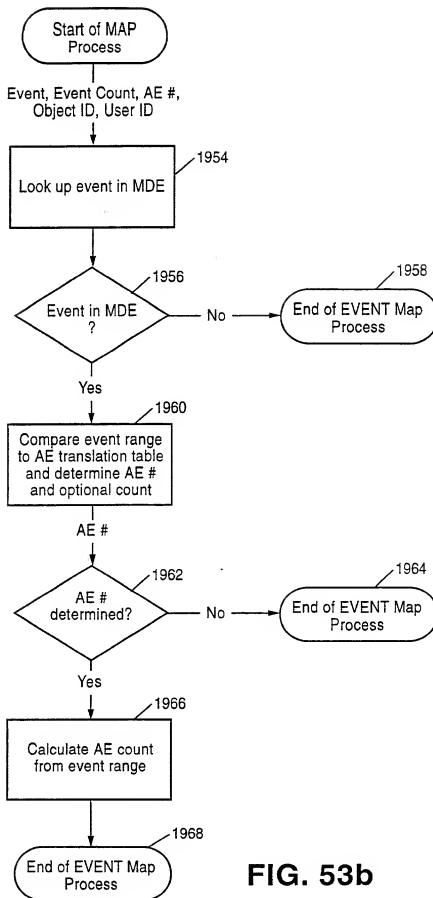


FIG. 53b

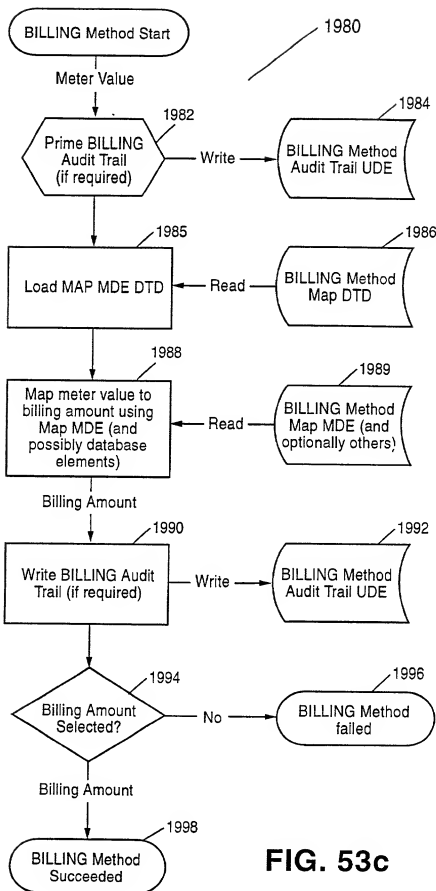


FIG. 53c

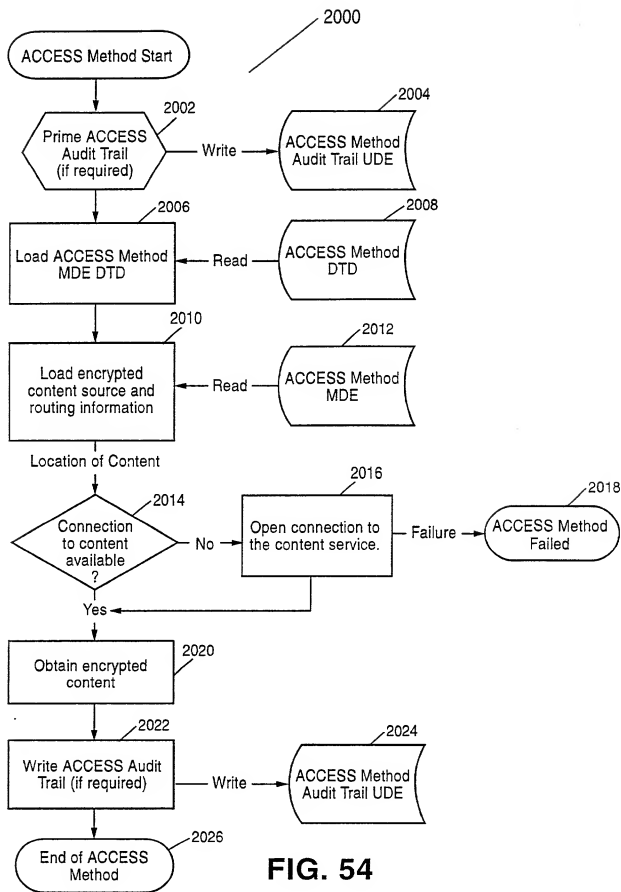


FIG. 54

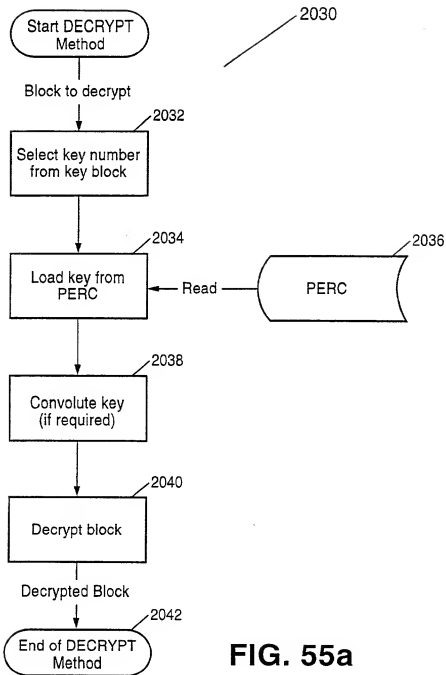


FIG. 55a

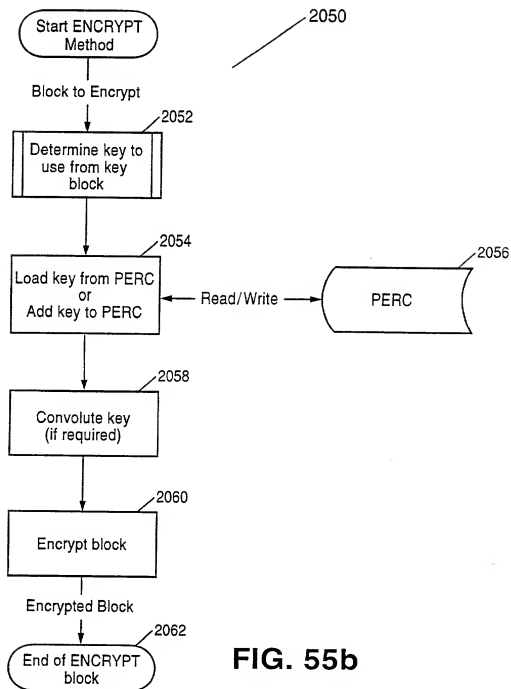


FIG. 55b

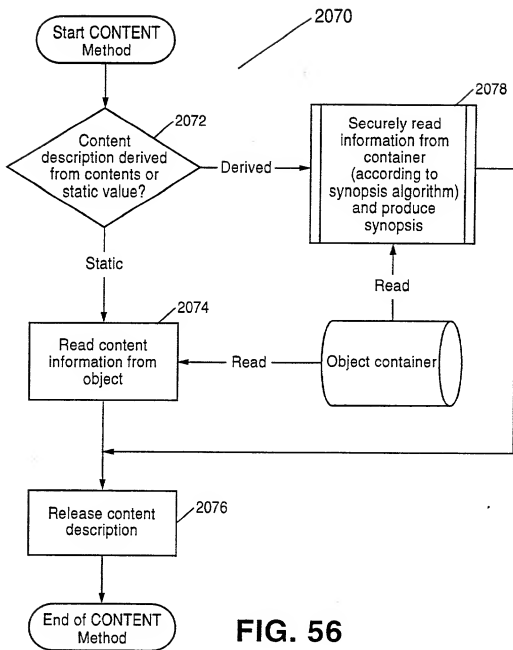


FIG. 56

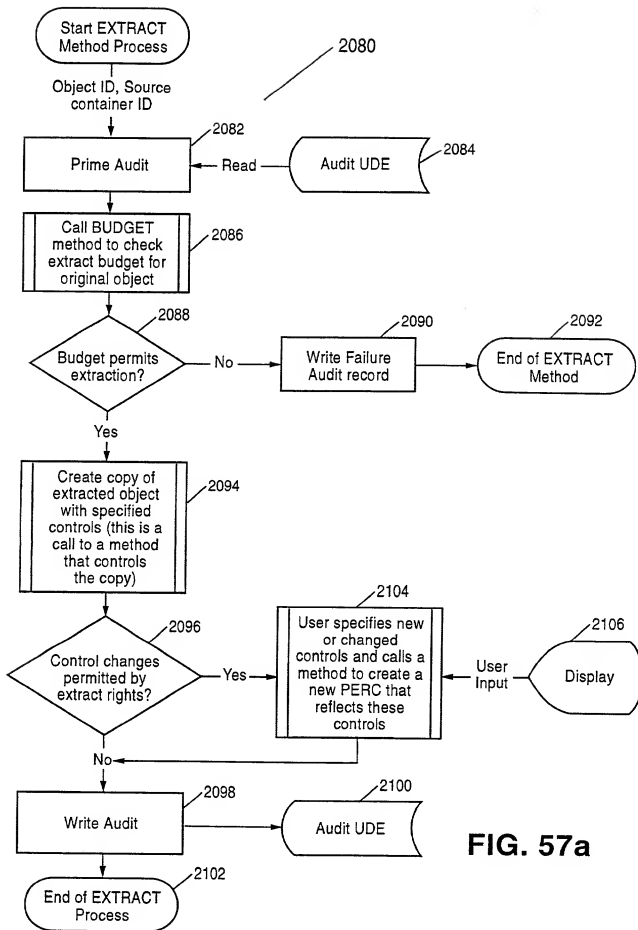


FIG. 57a

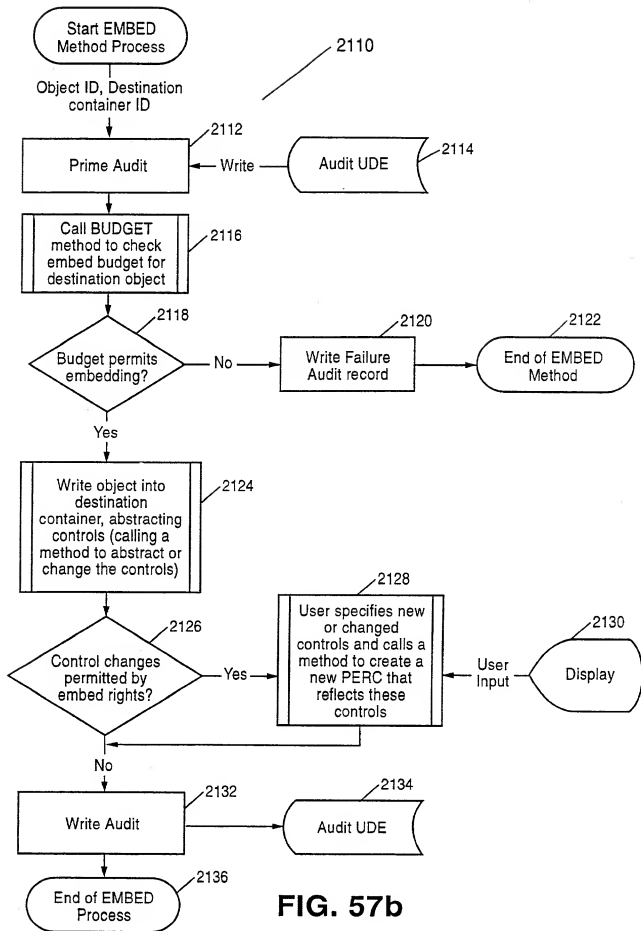


FIG. 57b

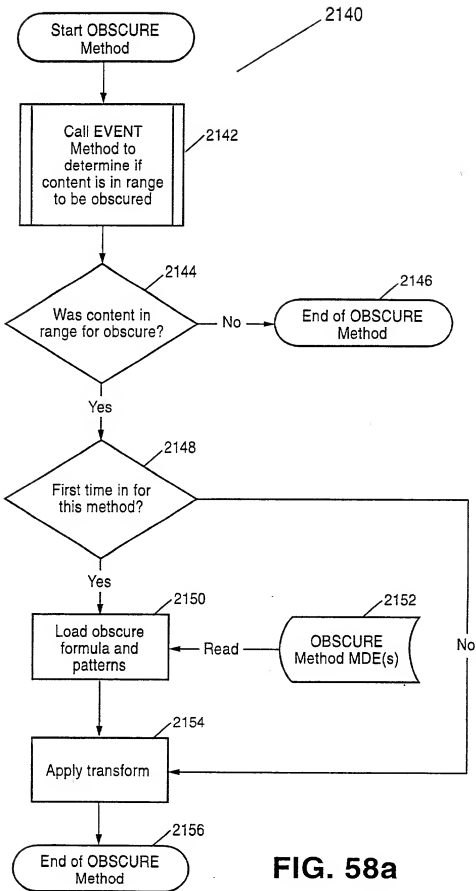


FIG. 58a

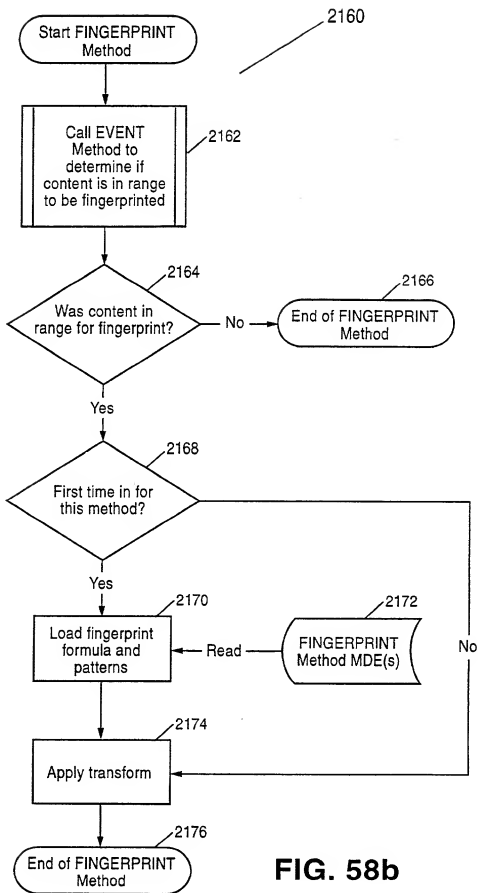


FIG. 58b

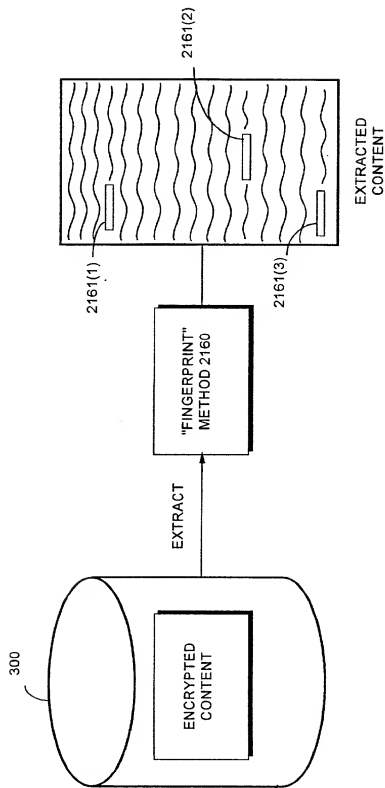


FIG. 58C

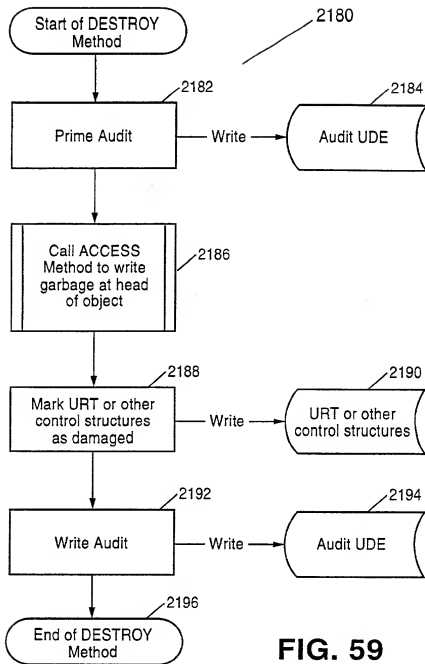


FIG. 59

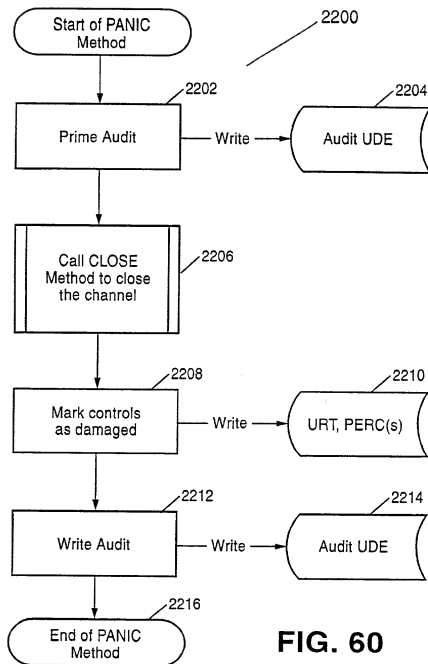


FIG. 60

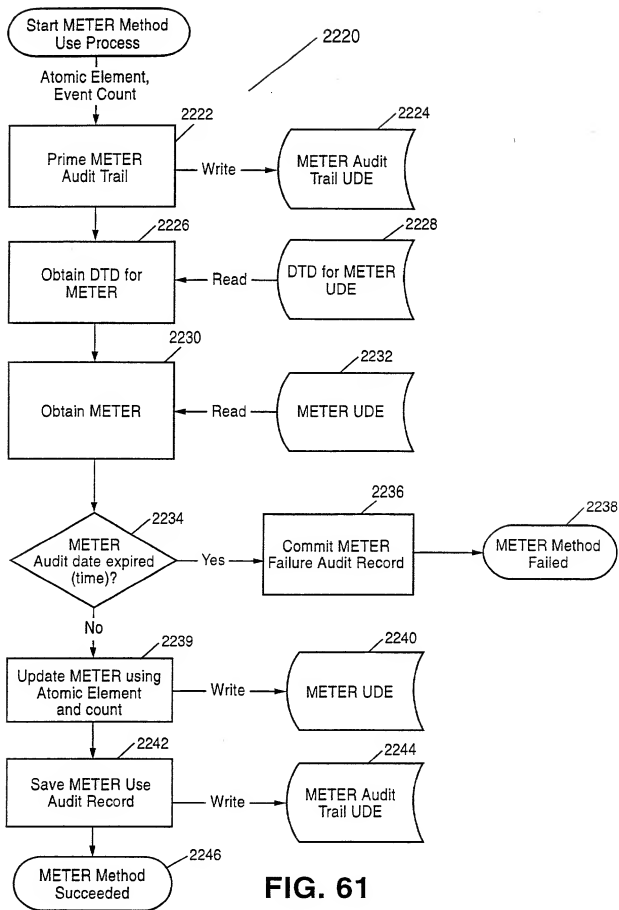
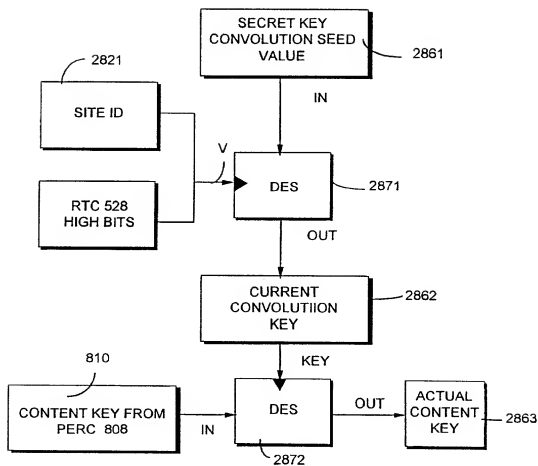


FIG. 61

FIG. 62



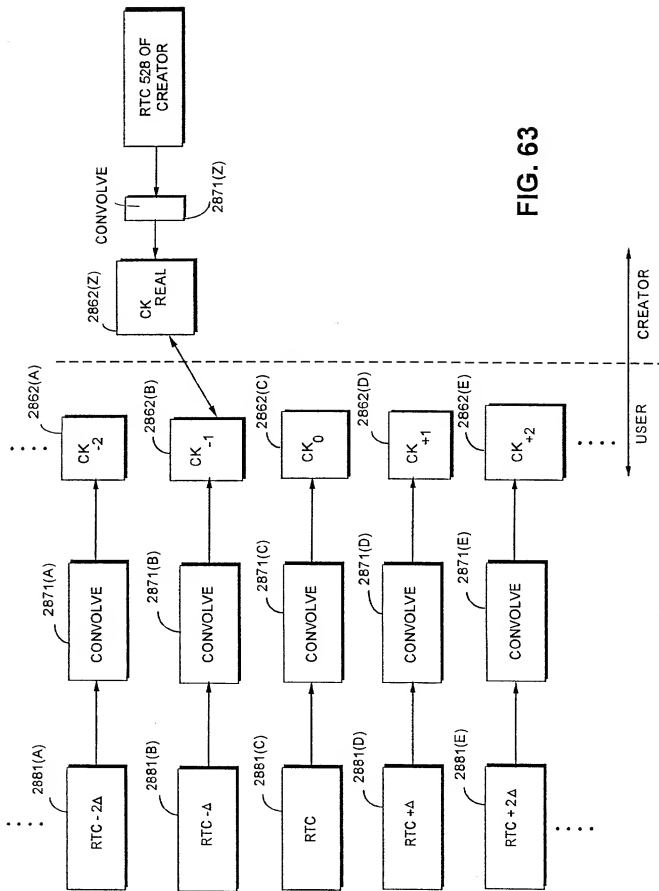


FIG. 63

FIG. 64

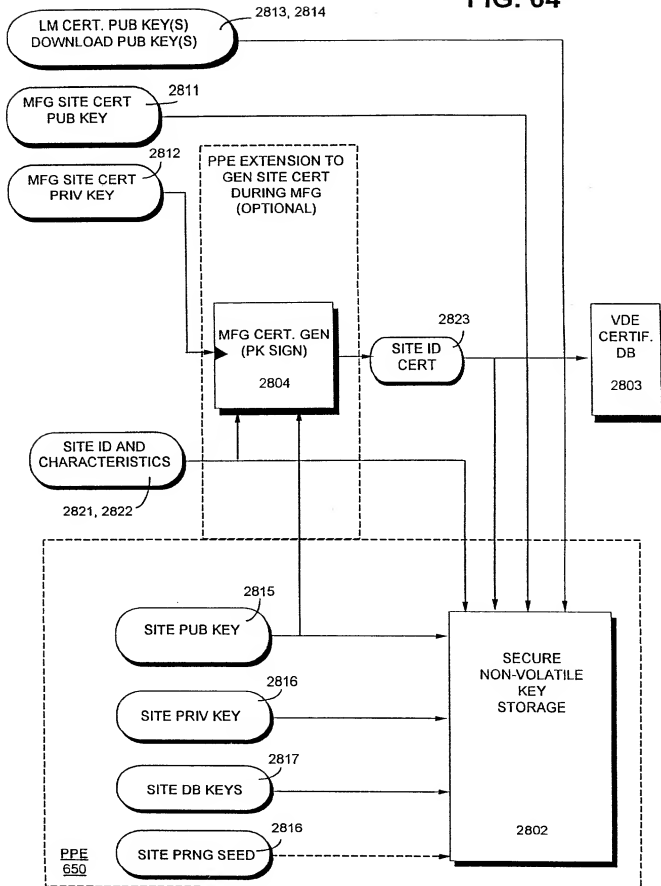


FIG. 65

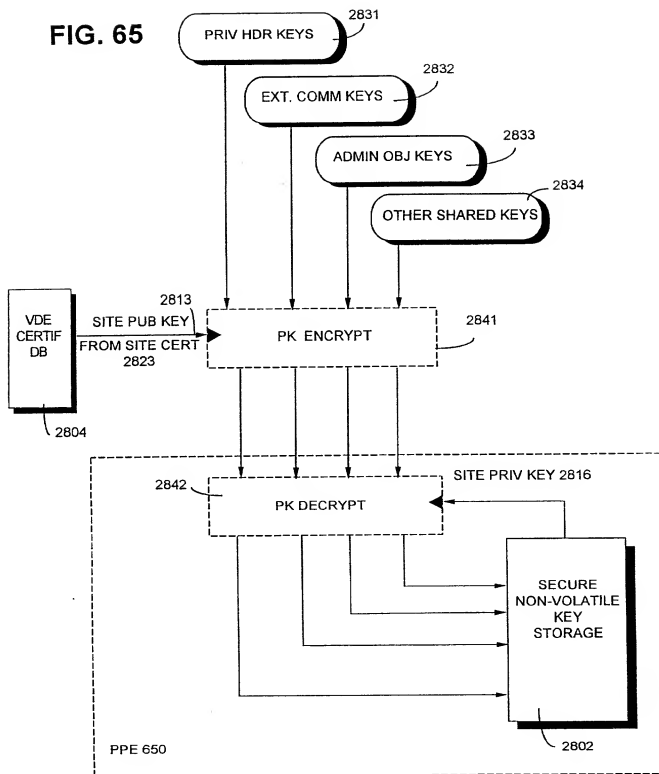
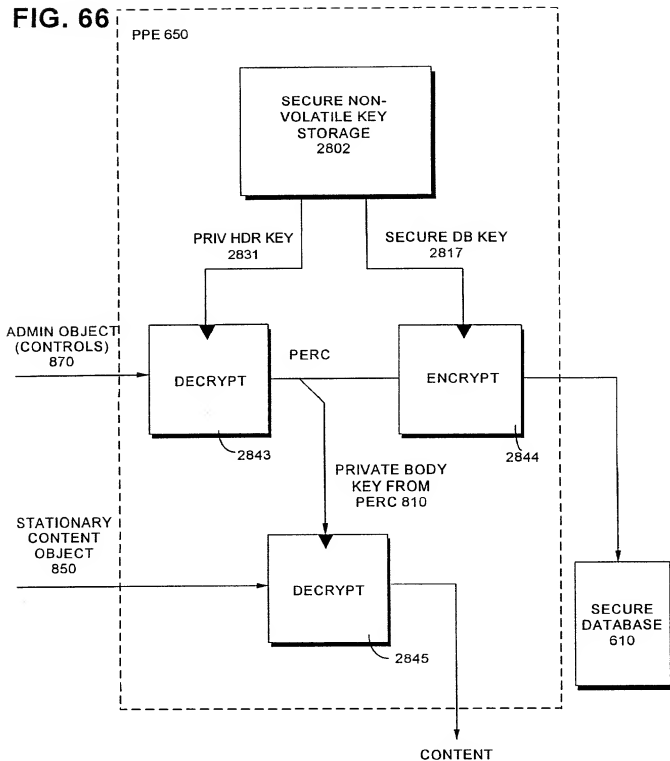


FIG. 66



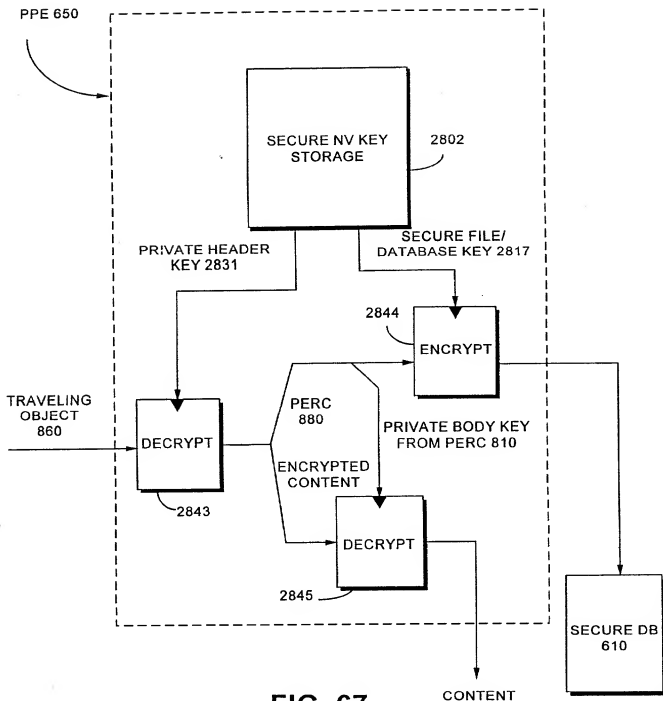


FIG. 67

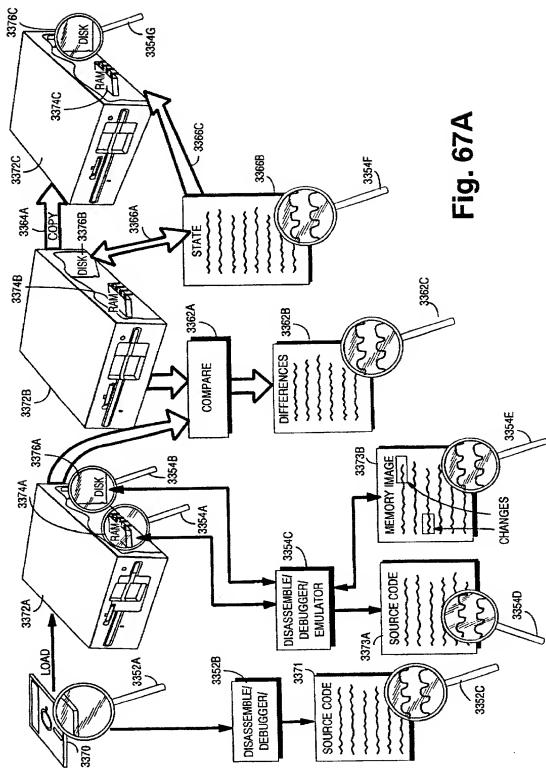


Fig. 67A

Fig. 67B

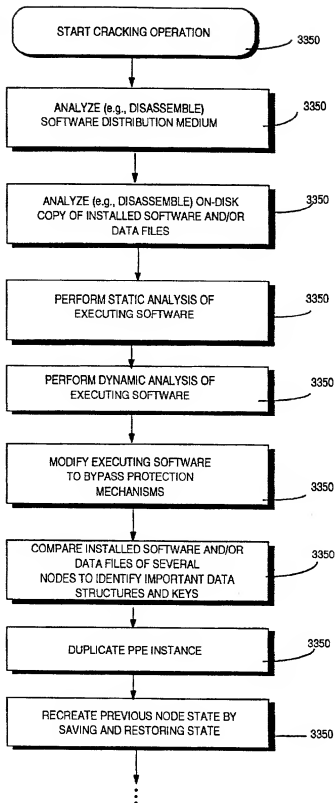


FIG. 68

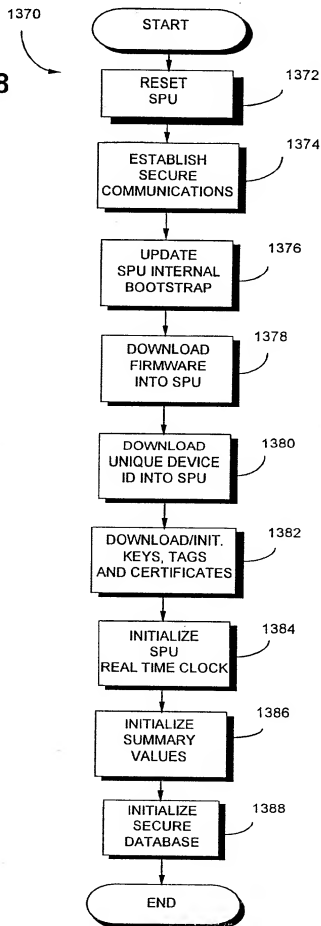


FIG. 69

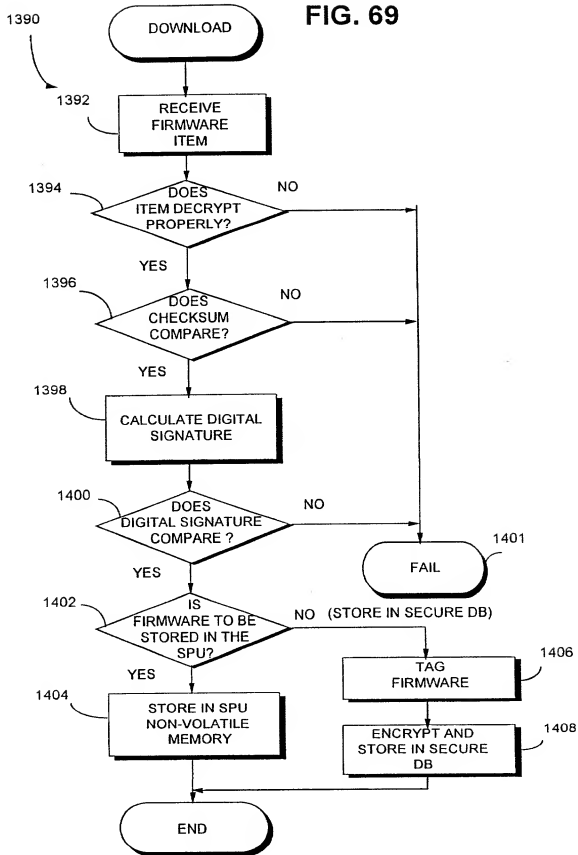


Fig. 69A

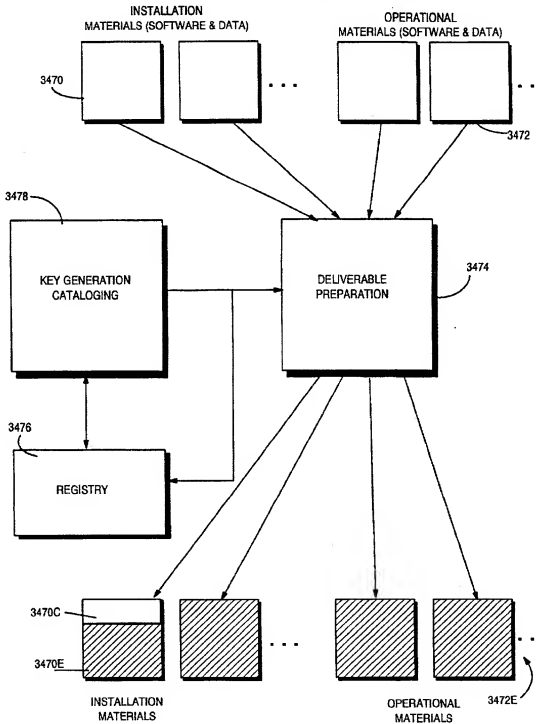


Fig. 69B

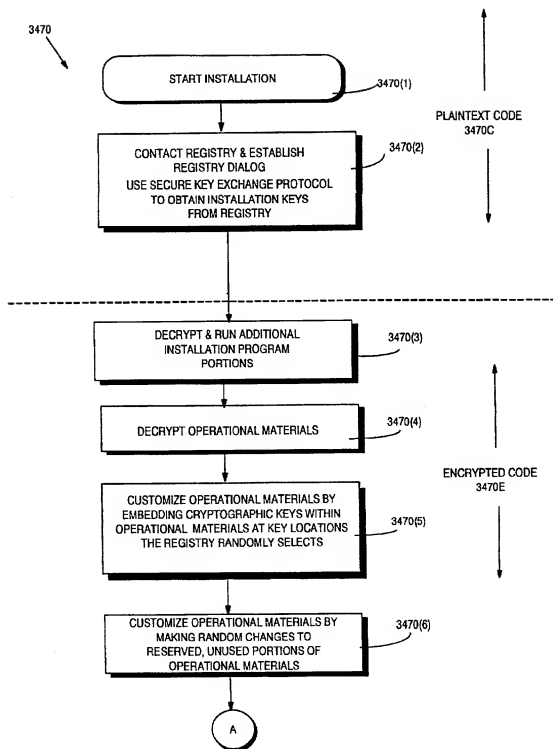
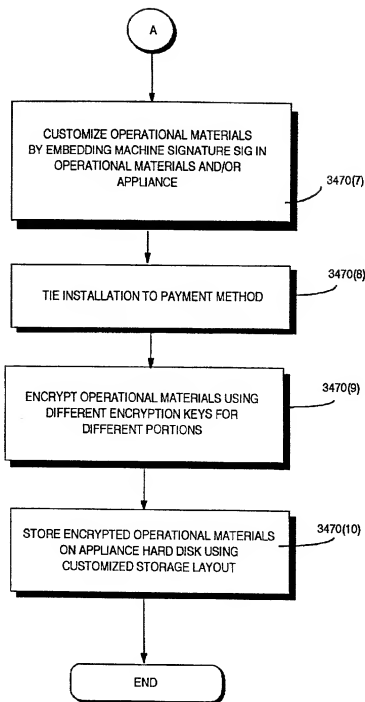


Fig. 69C



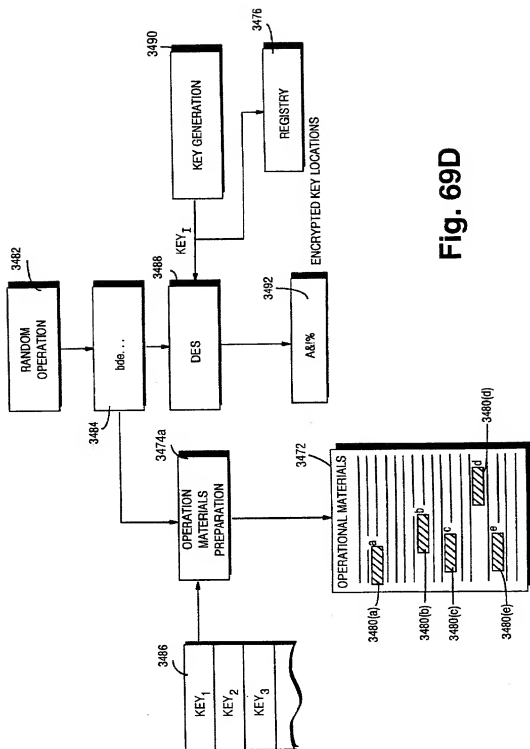


Fig. 69D

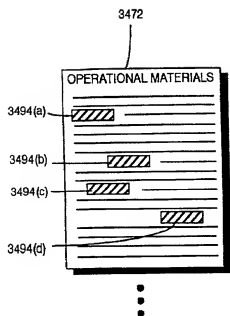


Fig. 69E

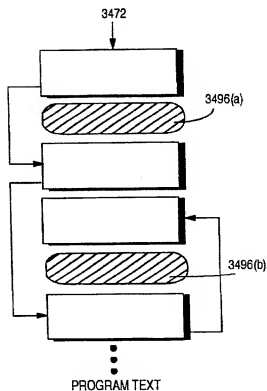


Fig. 69F

Fig. 69G

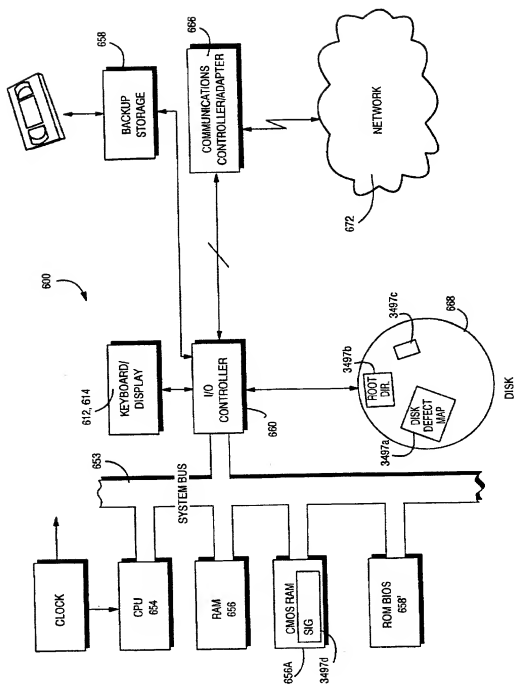


Fig. 69H

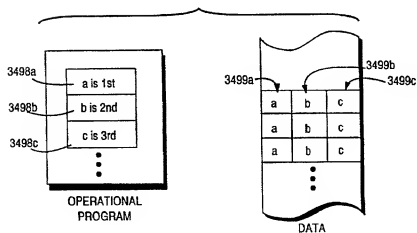
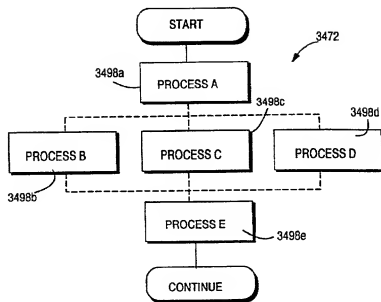


Fig. 69I

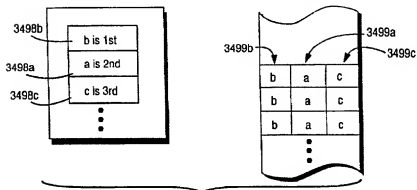


Fig. 69J

Fig. 69K

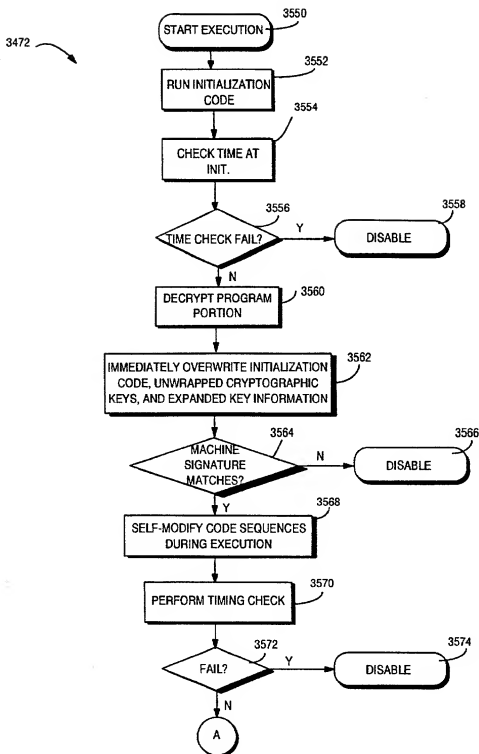


Fig. 69L

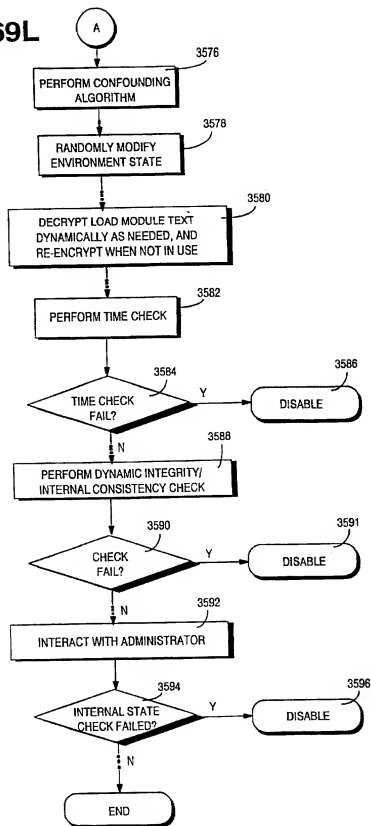
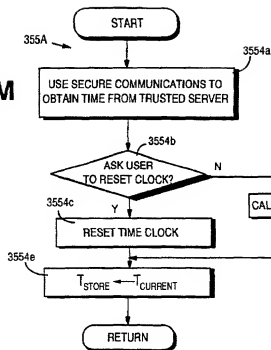


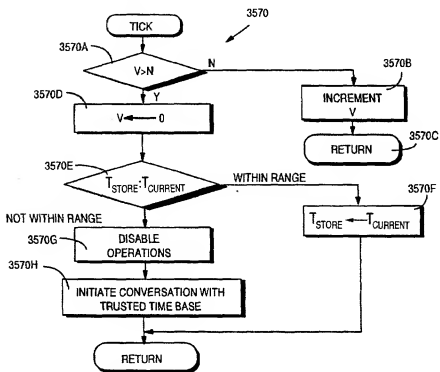
Fig. 69M



DRAFT BUDGET
AMT DRAFTED
ΔT
T_{STORE}

Fig. 69O

Fig. 69N



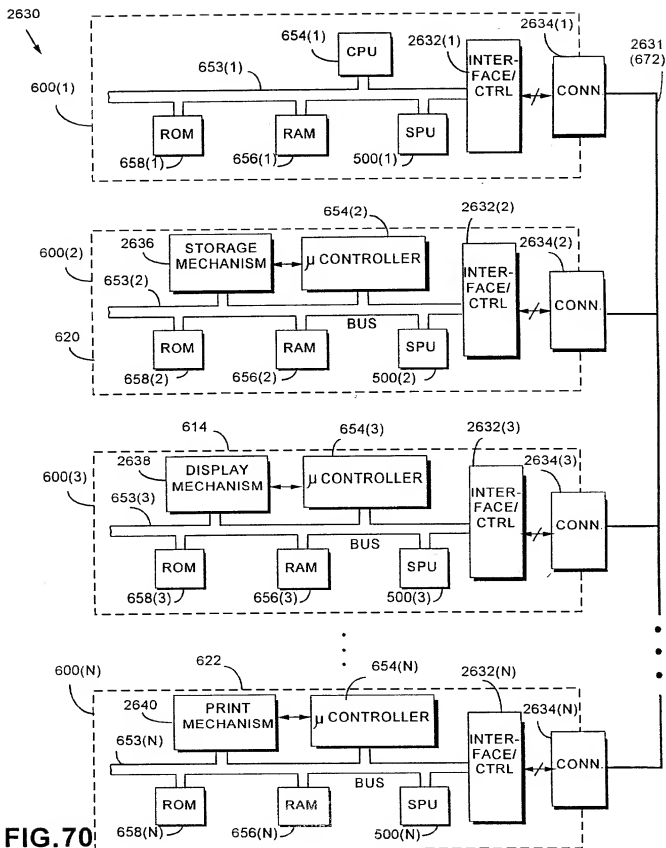


FIG. 70

FIG. 70B

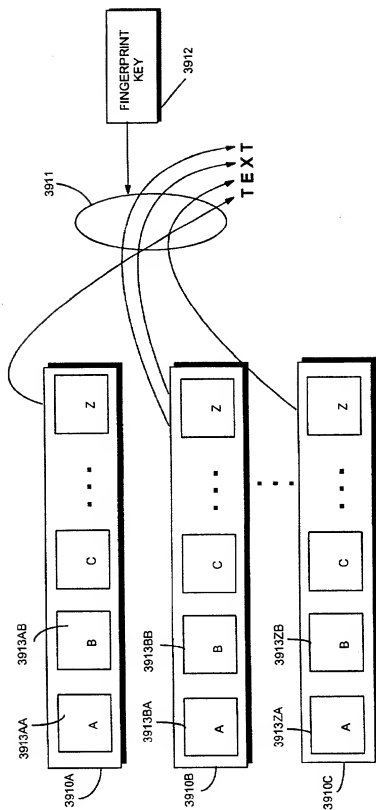


FIG. 70C

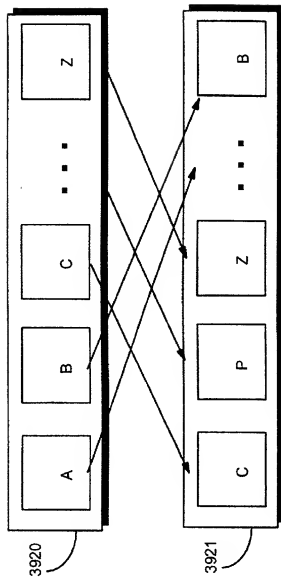
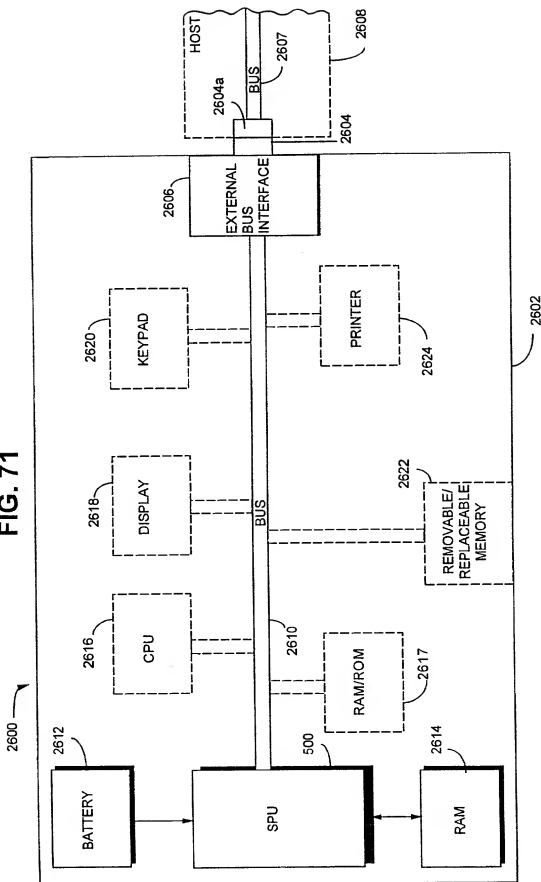


FIG. 71



LOG IN USER INTERFACE

182

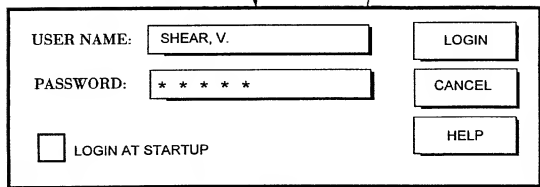


Diagram of a login interface (FIG. 72A). It features a rectangular frame containing three input fields on the left and three buttons on the right. The first input field is labeled "USER NAME:" and contains the text "SHEAR, V.". The second input field is labeled "PASSWORD:" and contains six asterisks "*****". Below the password field is a checkbox labeled "LOGIN AT STARTUP". The three buttons on the right are labeled "LOGIN", "CANCEL", and "HELP" from top to bottom. A reference numeral "182" points to the top right corner of the frame.

FIG. 72A

FIG. 72B

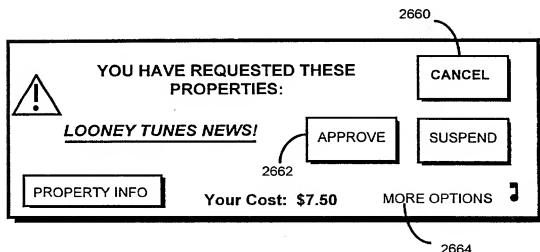


Diagram of a property request confirmation dialog (FIG. 72B). The dialog is a rectangular frame with a warning icon (a triangle with an exclamation mark) in the top left corner. The main text reads "YOU HAVE REQUESTED THESE PROPERTIES:". Below this, the property name "LOONEY TUNES NEWS!" is displayed. To the right of the property name are two buttons labeled "APPROVE" and "SUSPEND". In the top right corner is a button labeled "CANCEL". In the bottom left corner is a button labeled "PROPERTY INFO". In the bottom center, the text "Your Cost: \$7.50" is shown. In the bottom right corner, the text "MORE OPTIONS" is followed by a right-pointing arrow. Reference numerals "2660", "2662", and "2664" point to the "CANCEL" button, the "APPROVE" button, and the "MORE OPTIONS" text/arrow respectively.

FIG. 72C

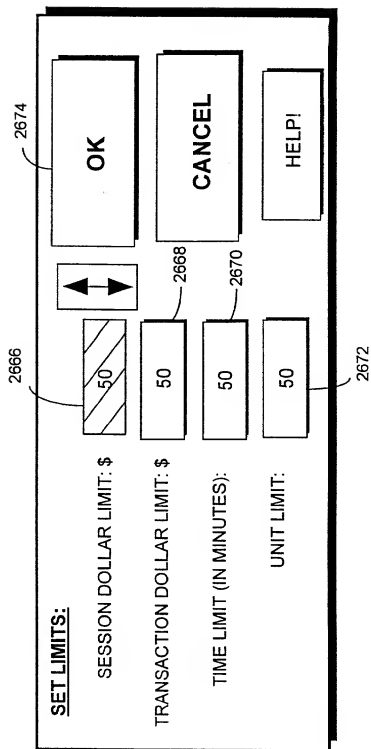



FIG. 72D



YOU HAVE REQUESTED THESE PROPERTIES:

LOONEY TUNE NEWS!

CANCEL


APPROVE

SUSPEND

PROPERTY INFO

YOUR COST : \$7.50

More Options ☒



Show Thumbnail ☒

PROPERTY:	SIZE:	PUBLISHER:	AMOUNT:	UNITS:	COST/UNIT:	TYPE:	USE?:	LINKS:	HIST:
CHUCK JONES BIOGRA...	256KB	WARNER NEW MEDIA	64	KBYTE	\$1.25	PREVIEW	✓		●
▼ BUGS BUNNY.JPE...	1MB	WARNER NEW MEDIA	1	RECORD	\$5.00	DISPLAY	✓		●
BUGS BUNNY.JPEG...	1MB	WARNER NEW MEDIA	10	RECORD	\$3.50	DISPLAY			●
BUGS BUNNY.JPEG...	1MB	WARNER NEW MEDIA	25	RECORD	\$2.50	DISPLAY			●
FRIZ FRELENG BIOGRA...	256KB	WARNER NEW MEDIA	120	SECTOR	\$5.00	PRINT			
TEX AVERY BIOGRAP...	256KB	WARNER NEW MEDIA	50	PERCENT	\$2.50	COPY			
► DUCK! RABBIT DU...	64MB	WARNER NEW MEDIA	7.0	MINUTE	\$7.50	COPY-PRO			
MEL BLANC BIOGRAPH...	256KB	WARNER NEW MEDIA	1	SPECIAL	\$25.25	INSTALL			
LOONEY TUNES DATAB...	600MB	WARNER NEW MEDIA	1	OBJECT	\$2000.00	ALL			●

SET LIMITS...

SHOW BUDGETS

ACQUIRE BUDGET...

HISTORY...

TRANSFER...

PREFERENCES...

FEEDBACK...

HELP!

FIG. 73

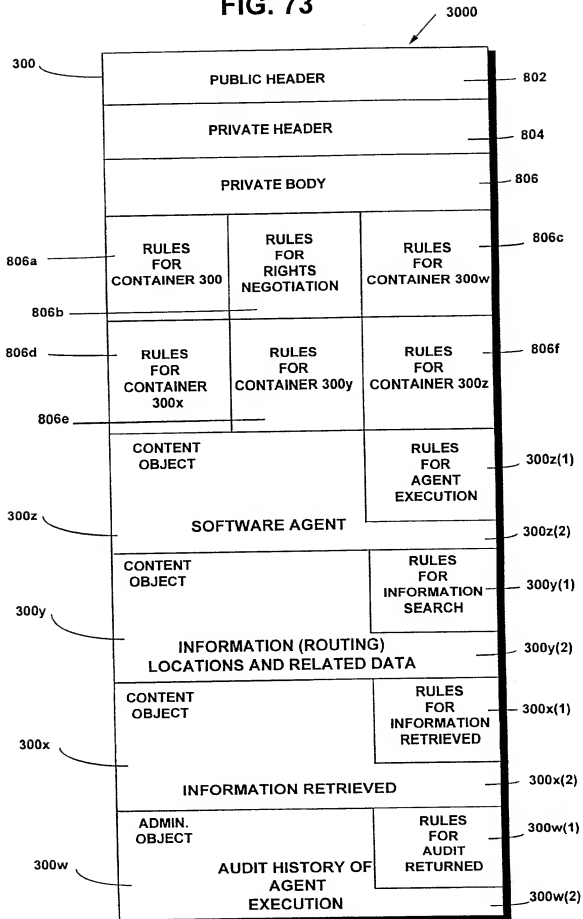


FIG. 74

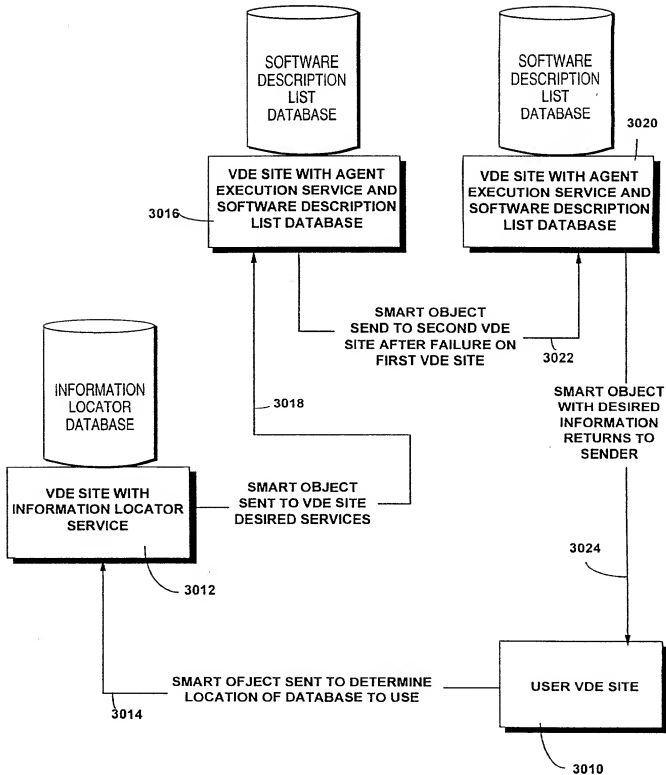


FIG. 75A

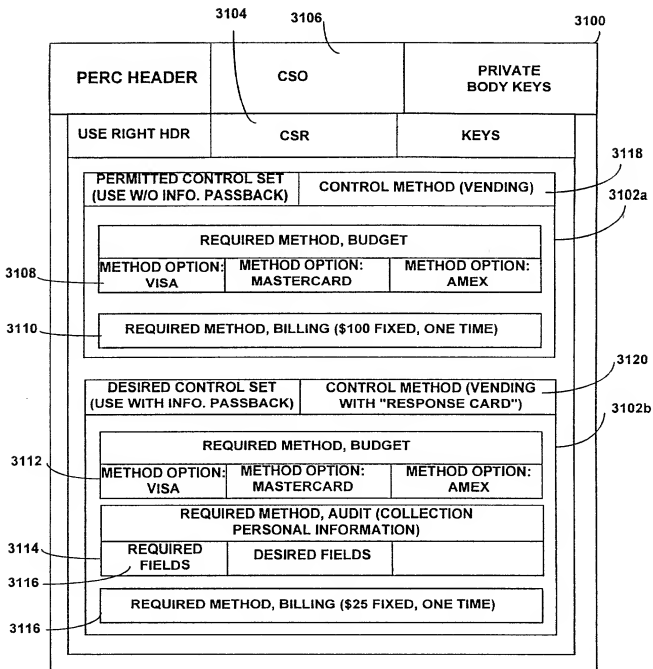


FIG. 75B

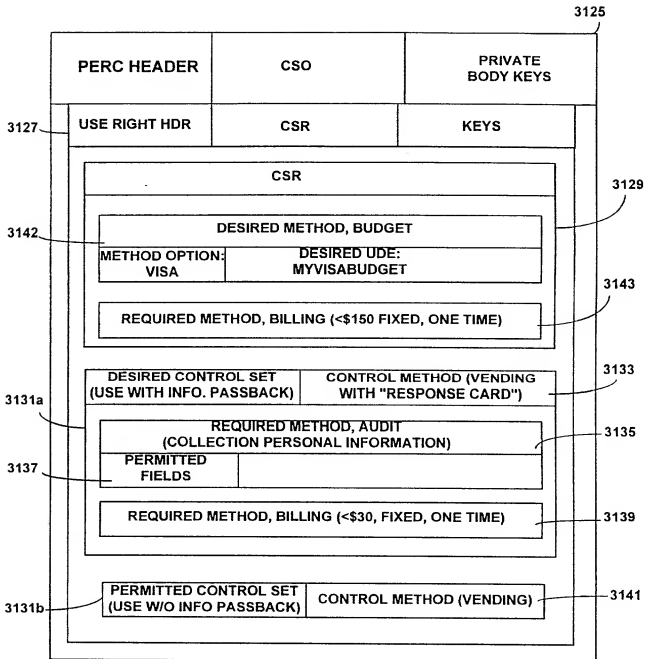


FIG. 75C

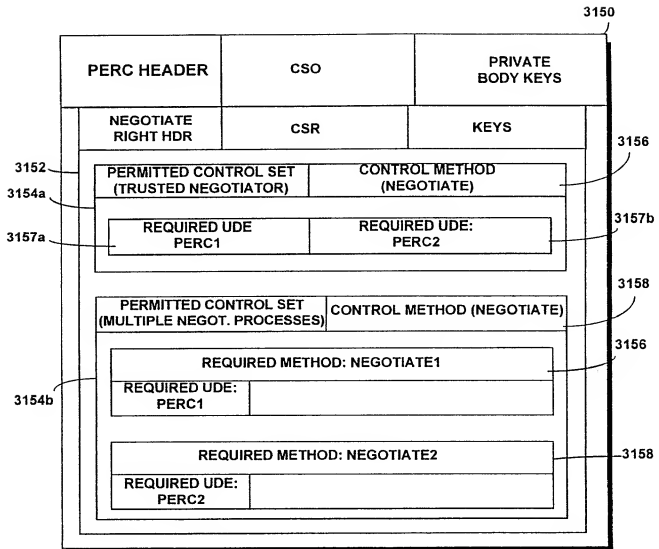


FIG. 75D

URT HEADER		CSO		DIGITAL SIGNATURE	
USE RIGHT HDR		CSR			
CONTROL SET(USE WITH INFO. PASSBACK)		CONTROL METHOD(VENDING WITH "RESPONSE CARD")			
REQUIRED METHOD, BUDGET					
METHOD OPTION: VISA		DESIRED UDE: MYVISABUDGET			
REQUIRED METHOD, AUDIT (COLLECTION PERSONAL INFORMATION)					
PERMITTED FIELDS					
REQUIRED METHOD, BILLING(\$25, FIXED, ONE TIME)					

3160

3162

3164

3166

3170

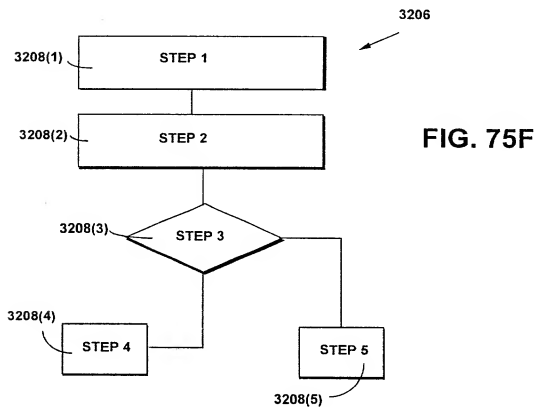
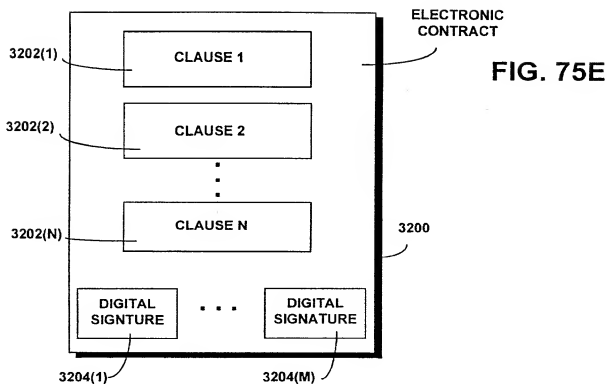


FIG. 76A

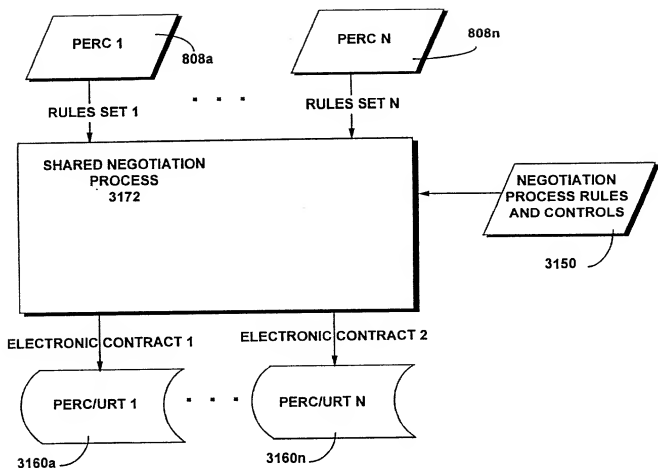


FIG. 76B

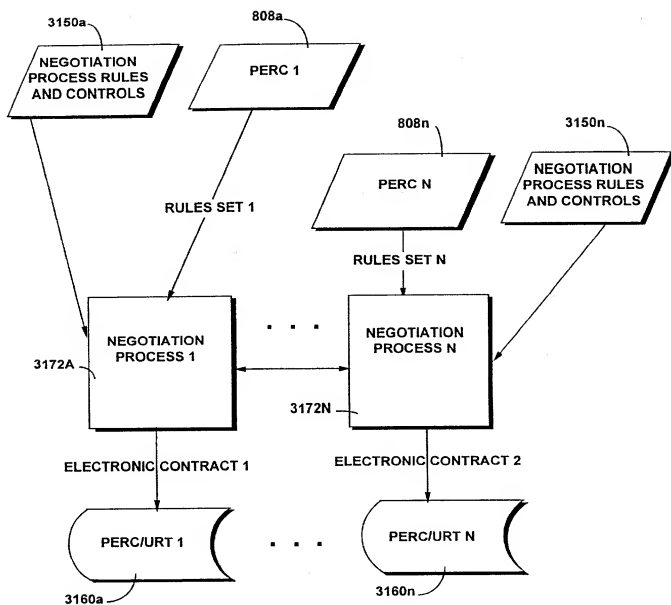
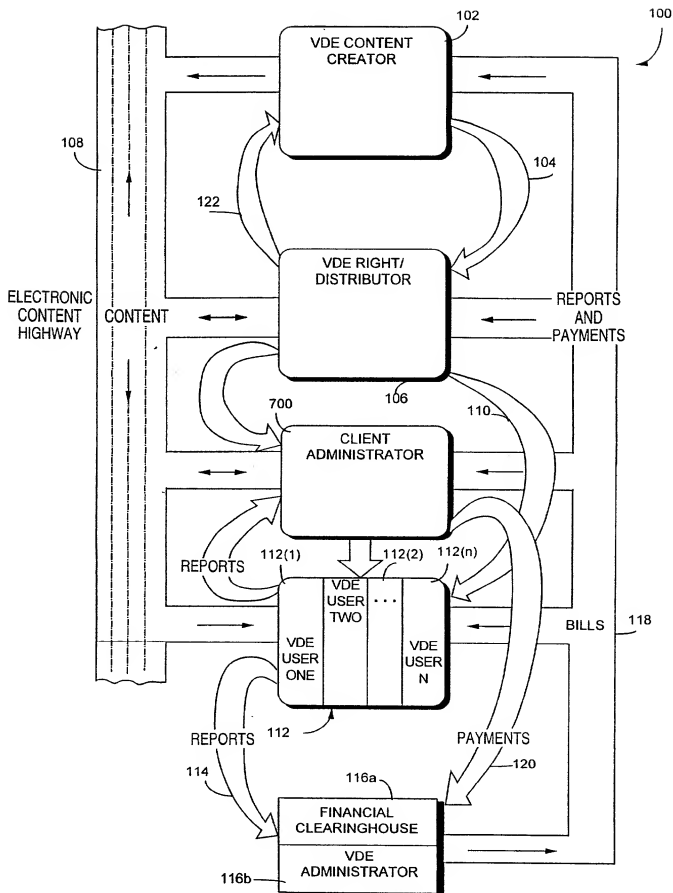


FIG. 77



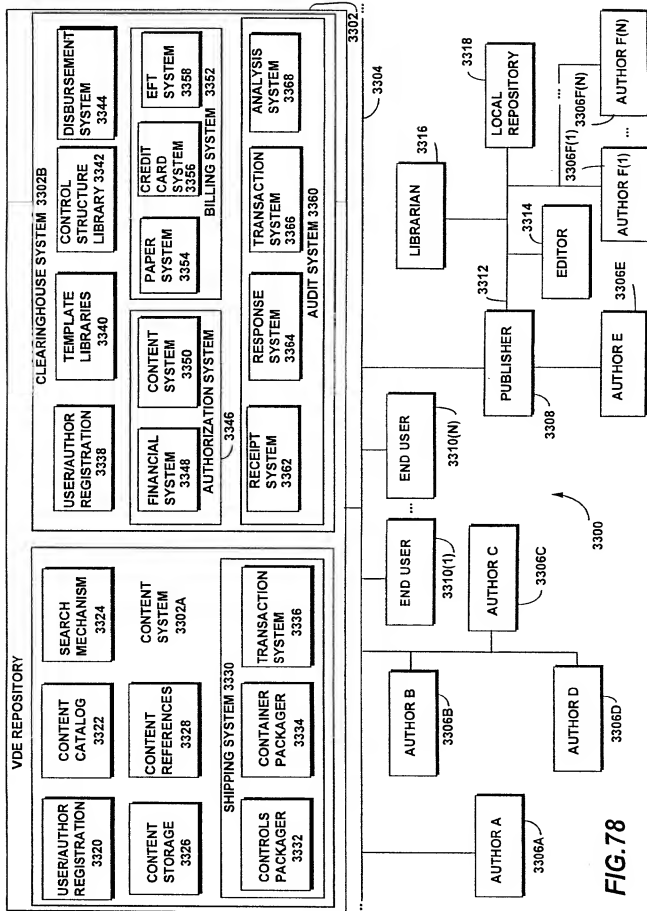


FIG. 79

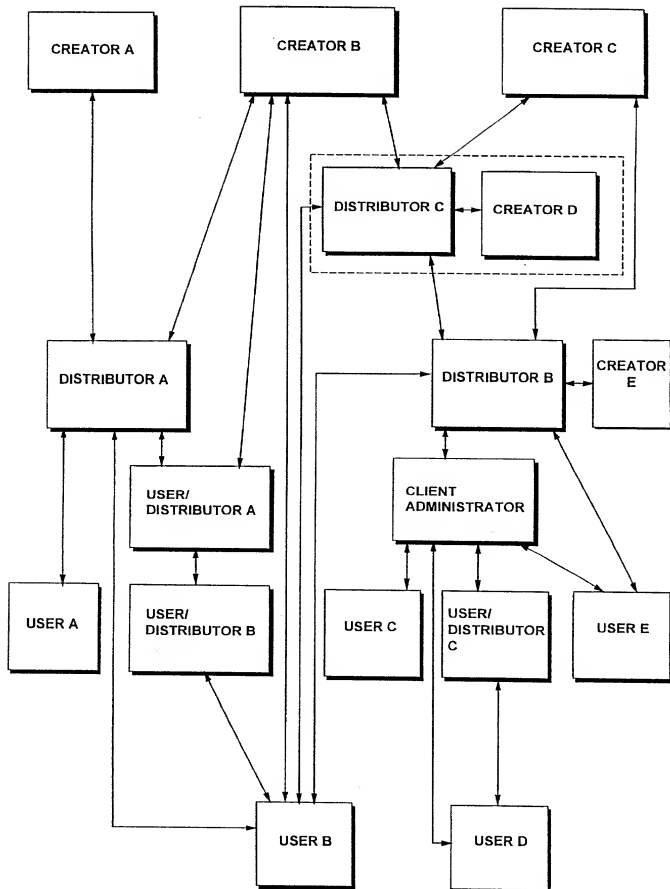


FIG. 80

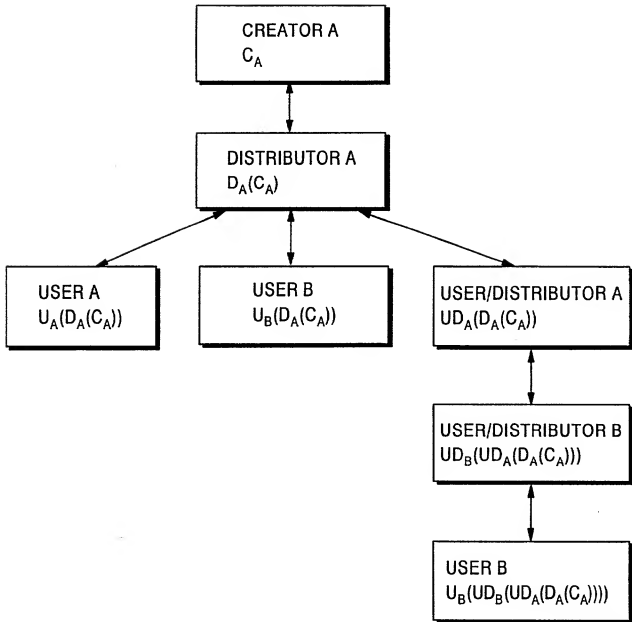


FIG. 81

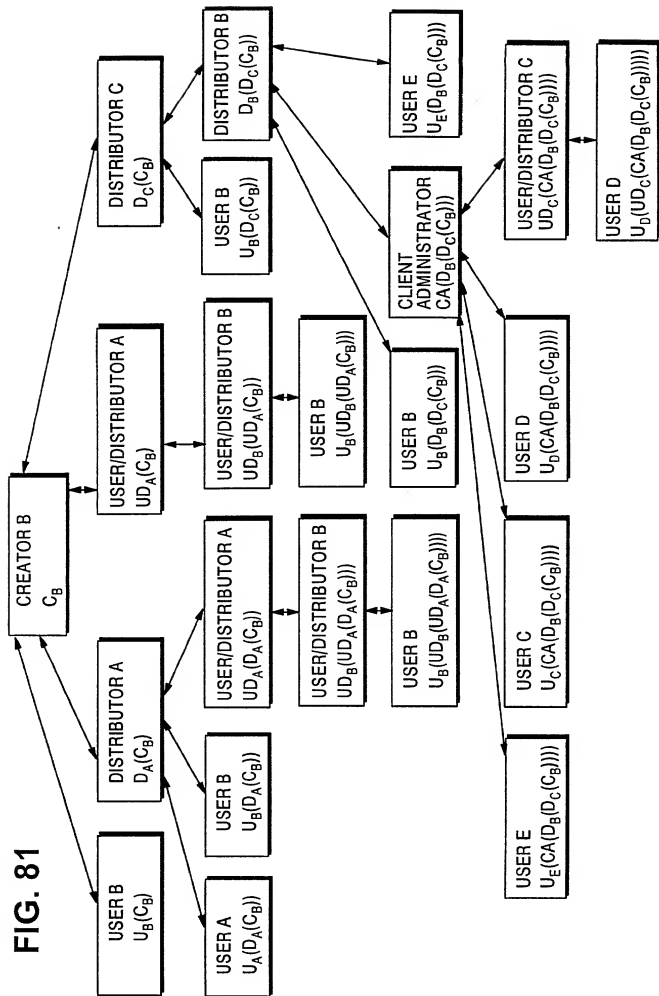


FIG. 82

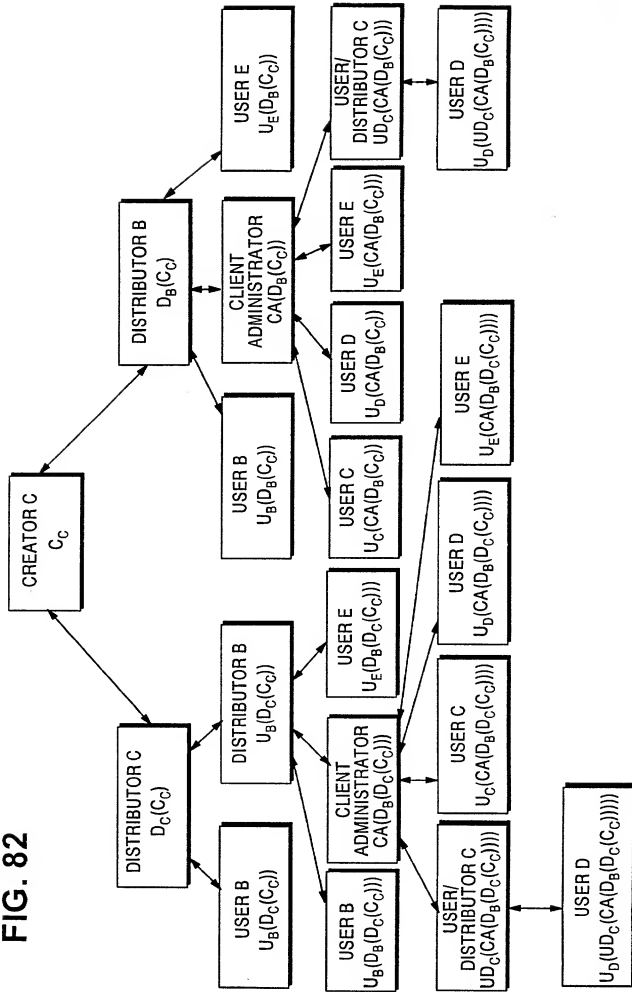


FIG. 83

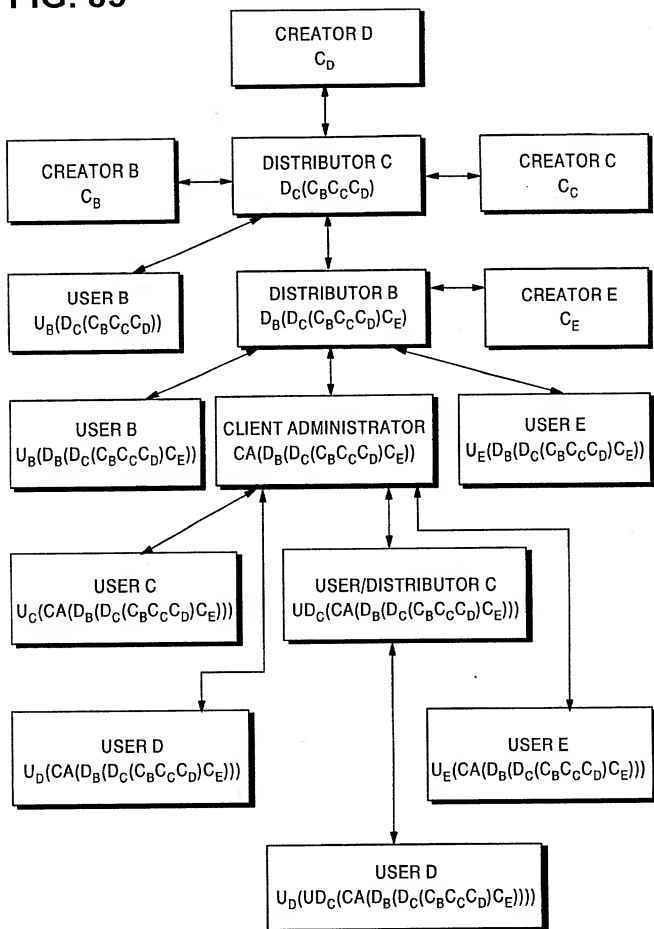


FIG. 85

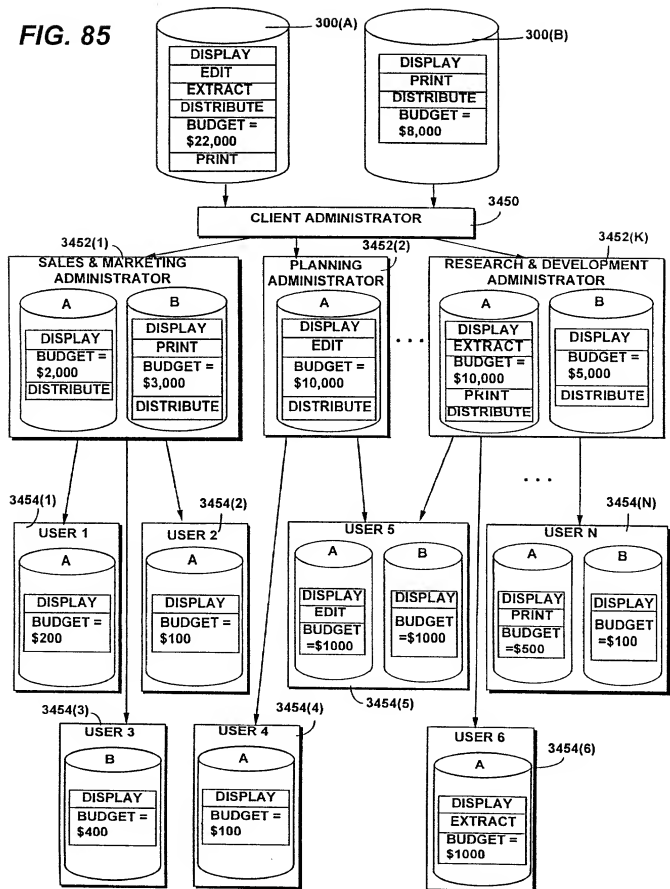


FIG. 86

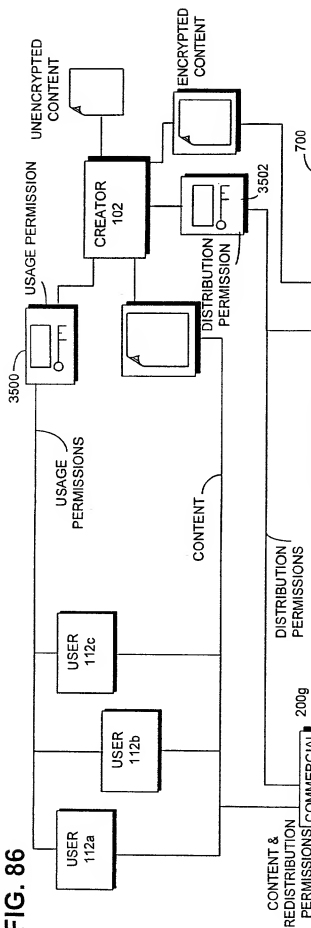
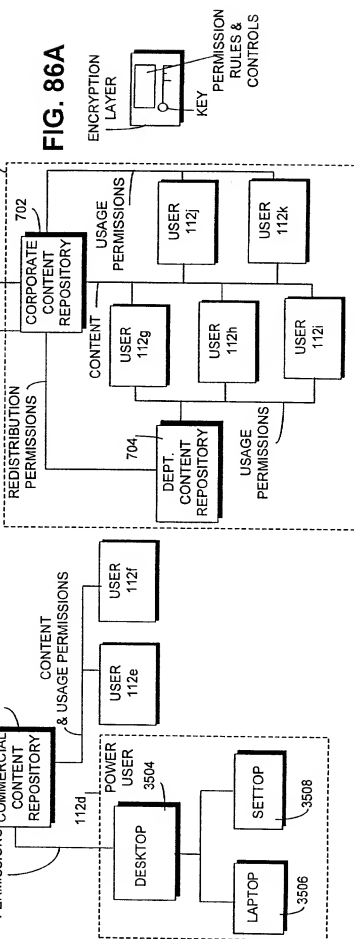


FIG. 86A



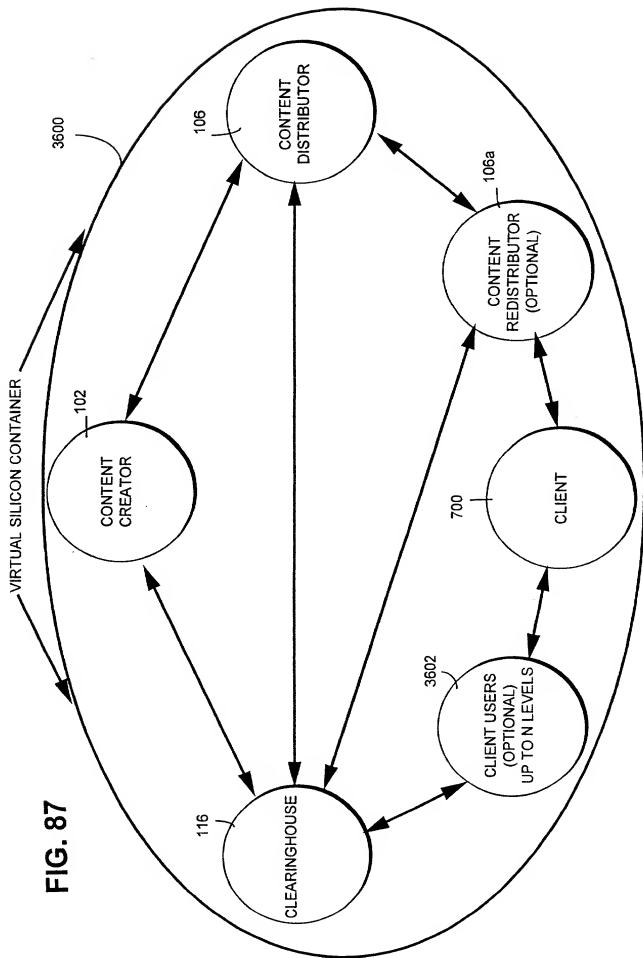


FIG. 88 Defective or "Bogus" Load Modules Can Cause Problems

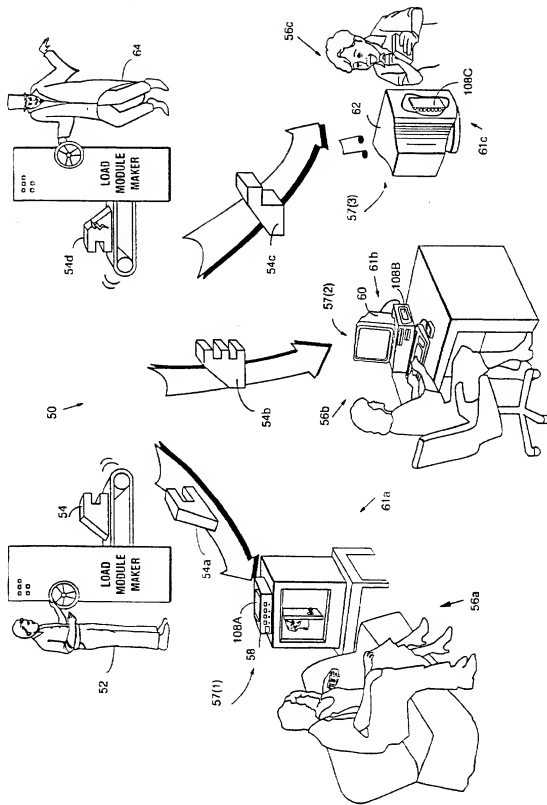


FIG. 89 Verifying Load Modules

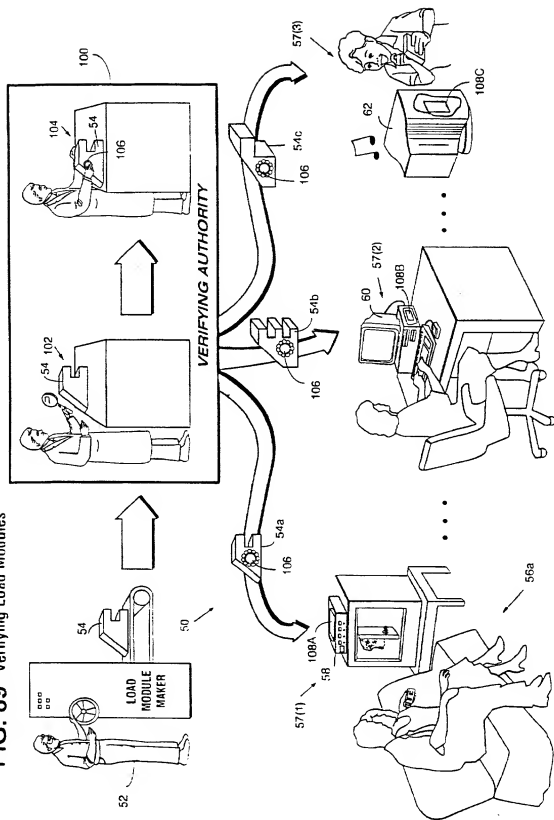
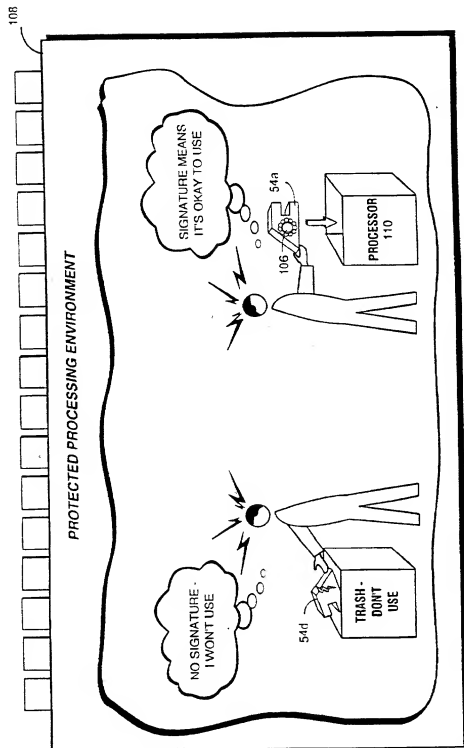


FIG. 90 Before Protected Processing Environment Uses A Load Module, It Checks To See If Load Module Has Been Verified



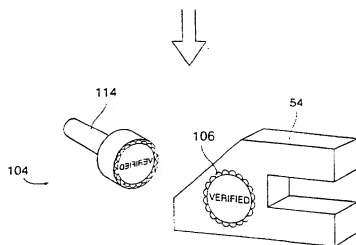
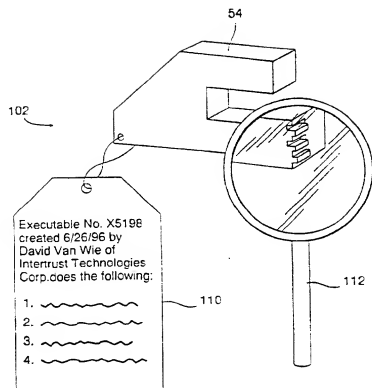


FIG. 91
Certifying Load Module by
Checking it Against its Documentation

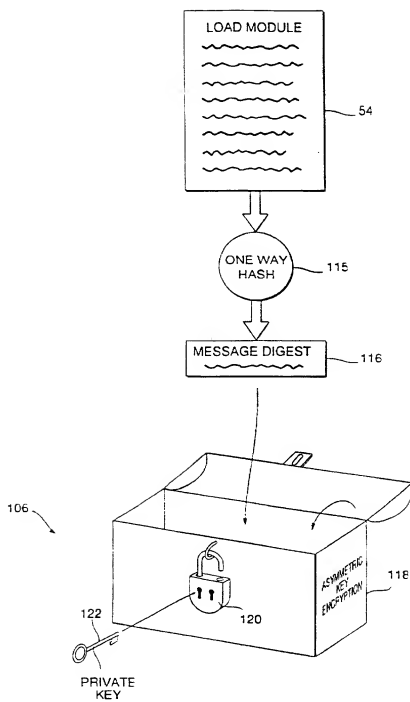


FIG. 92
Creating a Certifying
Digital Signature

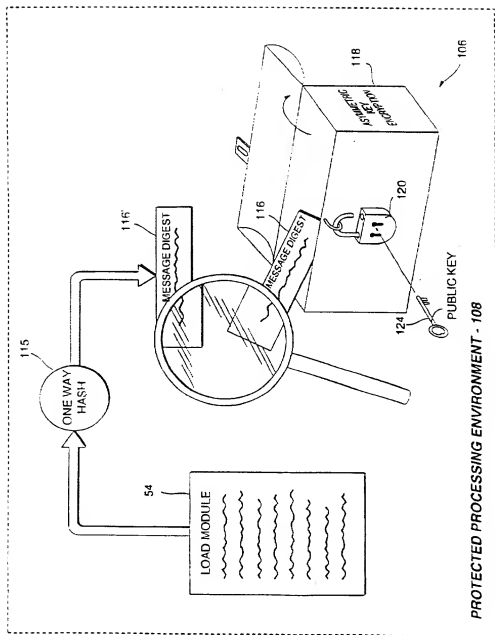


FIG. 93 Authenticating a Digital Signature

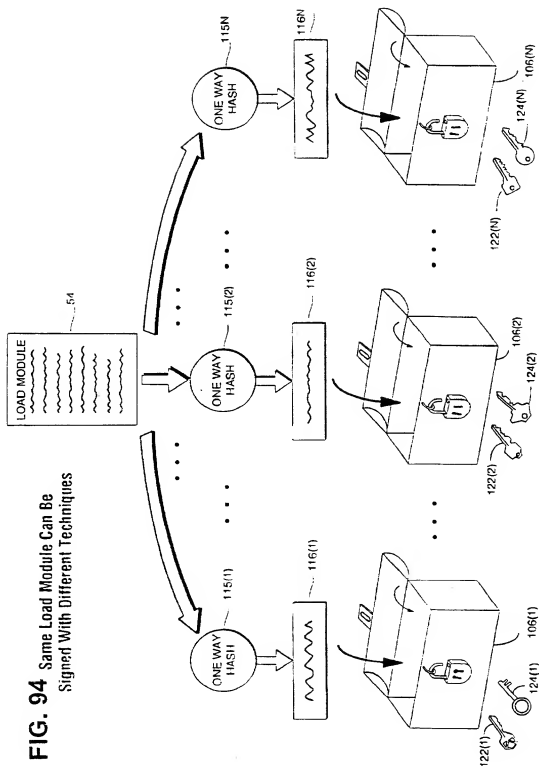


FIG. 95 Same Load Module Can Be
Distributed with Multiple Signatures

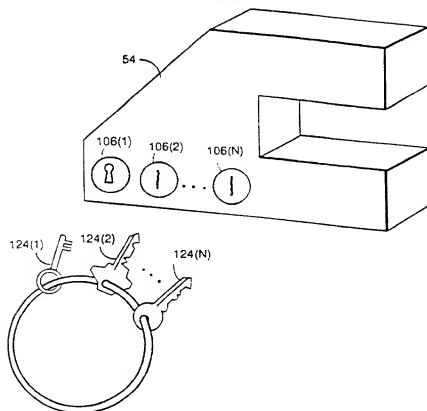


FIG. 95A Different Processing Environments Can Have
Different Subsets of Keys

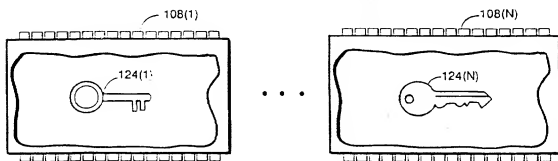
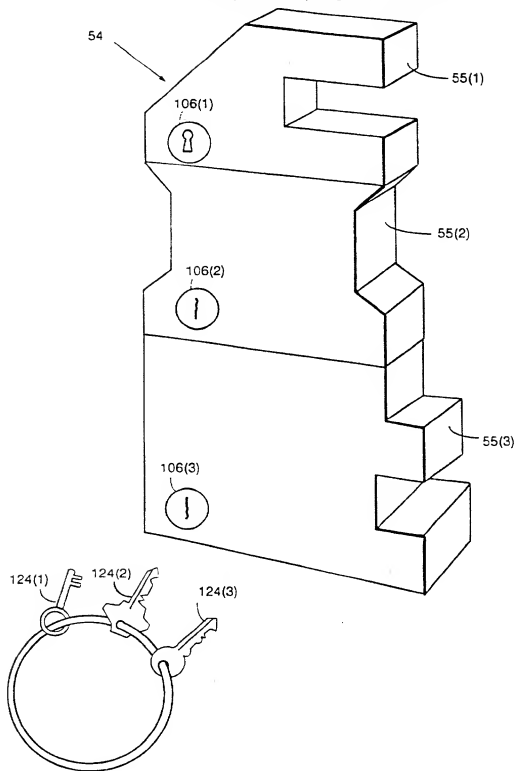


FIG. 96 Load Module Can Have Several Independently Signed Portions



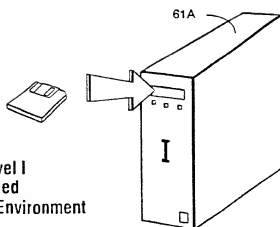


FIG. 97A Assurance Level I
Software-Based
Protected Processing Environment

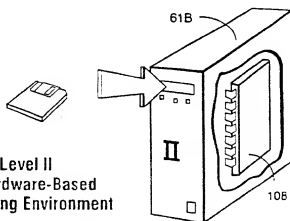


FIG. 97B Assurance Level II
Software and Hardware-Based
Protected Processing Environment

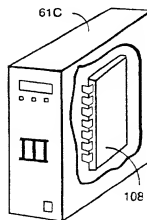


FIG. 97C Assurance Level III
Hardware-Based
Protected Processing Environment

FIG. 98A Level I
Digital Signature

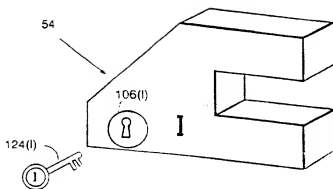


FIG. 98B Level II
Digital Signature

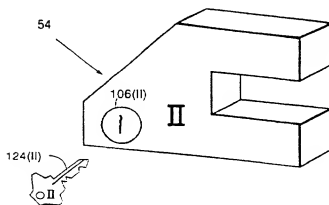
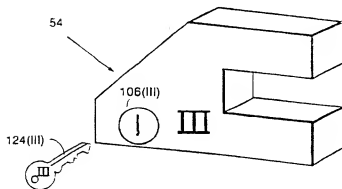


FIG. 98C Level III
Digital Signature



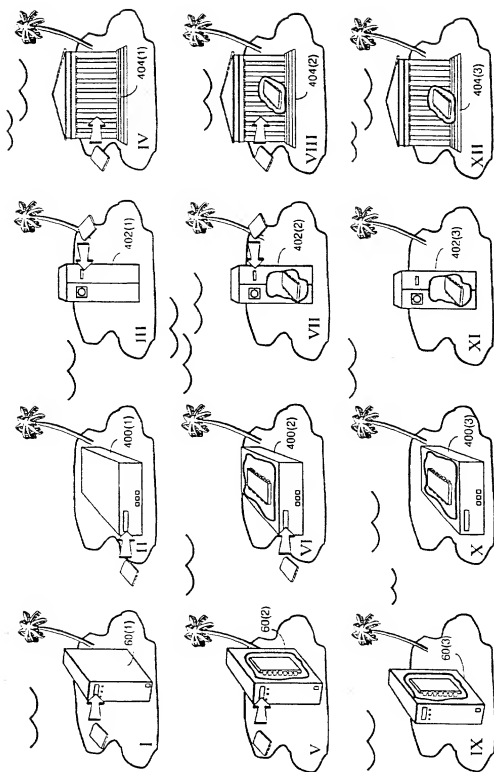


FIG. 99 Using Digital Signatures For Compartmentalizing Different Assurance Levels

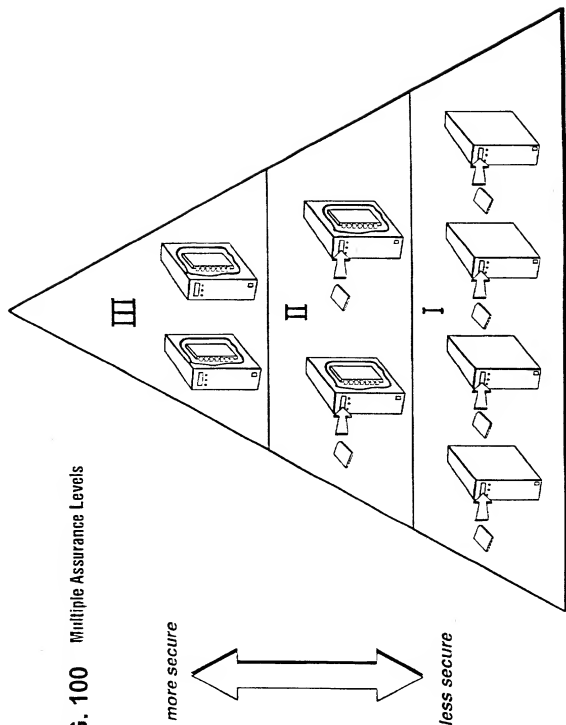
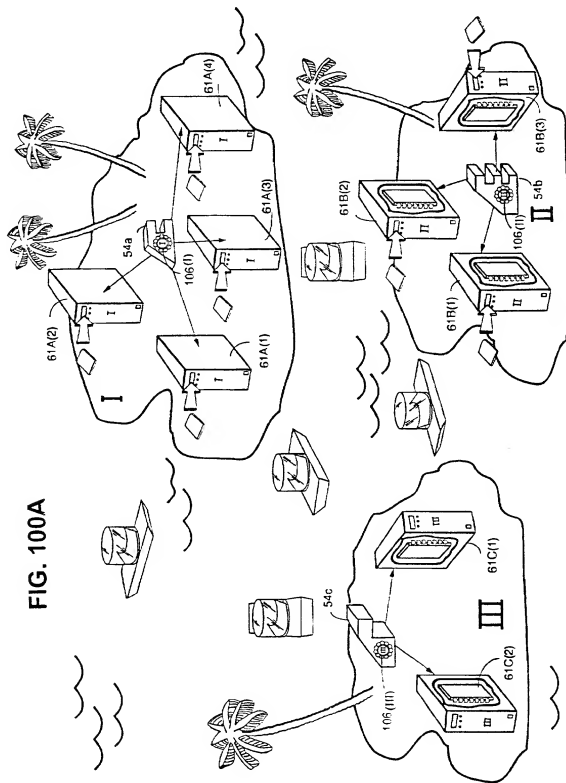


FIG. 100A



Provider of Executables

FIG. 101

